



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 26 2006

IDEM
OFFICE OF
WATER QUALITY
MAY 4 4 18 PM '06
REPLY TO THE ATTENTION OF:

WW-16J

Ms. Martha Clark Mettler
Office of Water Quality
Indiana Department of Environmental Management
100 North Senate Avenue
Mail code IGCN 1315
Indianapolis, IN 46204-2251

Dear Ms. Clark Mettler:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the final Total Maximum Daily Loads (TMDLs) including supporting documentation and information for the Beanblossom Creek Watershed in Indiana. They include Beanblossom Creek – Headwaters, Beanblossom Creek (8 segments), North Bear Fork, Lick Creek, Bell Creek, Bear Creek, Honey Creek, Indian Creek, and Jacks Defeat Creek. The Indiana Department of Environmental Management (IDEM's) TMDLs address the *E. coli* impairment of recreational use in the watershed. Based on this review, U.S. EPA has determined that Indiana's 16 TMDLs for *E. coli* meet requirement 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 approves 16 TMDLs for the Beanblossom Creek Watershed in Brown and Monroe Counties, 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 appreciate your hard work in this area and the submittal of the TMDL as required. If you have any questions, please contact Mr. Kevin Pierard, Chief of the Watersheds and Wetlands Branch at 312-886-4448.

Sincerely yours,

for Jo Lynn Traub
Director, Water Division

Enclosure

cc: Andrew Pelloso, IDEM
Staci Goodwin, IDEM

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DECISION DOCUMENT FOR BEANBLOSSOM CREEK WATERSHED, INDIANA, E. COLI TMDL

Section 303(d) of the Clean Water Act (CWA) and U.S. 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 U.S. EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and U.S. 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 U.S. 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 U.S. 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 U.S. 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

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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:

This TMDL will address approximately 91.17 miles of the Beanblossom Creek Watershed located in Brown and Monroe Counties, Indiana. Segments of the Beanblossom Creek Watershed are listed on the Indiana's 303(d) List for impairment of recreational use due to elevated *E. coli* levels during the recreational season. The *E. coli* impaired segments of the Beanblossom Creek Watershed include Beanblossom Creek, Beanblossom Creek-Headwaters, North Bear Fork, Lick Creek, Bell Creek, Bear Creek, Honey Creek, Indiana Creek, and Jacks Defeat Creek. The table on Page 1 of the TMDL identifies the waterbody as it appears on the Indiana 303(d) List and the State's segment identification number.

Beanblossom Creek starts in north central Brown County, Indiana and flows west. As it flows west it is joined by North Bear Fork, Lick Creek, Bell Creek and then Bear Creek, after which Beanblossom Creek discharges into Lake Lemon. Lake Lemon is located along the Brown-Monroe County line. Beanblossom Creek continues as an outlet from Lake Lemon flowing southwest through Monroe County until it is joined by an unnamed tributary fed by Griffy Lake in Monroe County, south of Bean Blossom Creek. Beanblossom Creek then flows northwest until it discharges in the West Fork of the White River near the Monroe-Owen County Line. In Monroe County, Bean Blossom Creek is joined by the tributaries of Honey Creek, Stouts Creek, Indiana Creek and Jacks Defeat Creek prior to discharging into White River.

Land use information was assembled in 1992 for the watershed. According to the 1992 data, approximately 67% of the land use in the watershed was forest, 26% was agriculture, 3% developed and 2% pasture. Figure 3 of the TMDL identifies the land uses. Sampling completed in 2001 identified no significant change in the land use.

There are both point and nonpoint sources of *E. coli*, the pollutant of concern in the Beanblossom Creek Watershed. There are eight NPDES permitted discharges in the watershed. Table 1 and figure 4 of the TMDL identify each discharger and the corresponding permit number and location. Four of the eight dischargers have limits for *E. coli* in their permits. The State determined that all four of these facilities are in compliance with the *E. coli* limits in their

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respective permits and are not significant sources of *E. coli*. The permit limits are set at the geometric mean of 125/100ml for *E. coli* and a single sample maximum of 235/100ml. Three of the remaining dischargers each have a possible sanitary component to their discharge. However, they do not have *E. coli* limits because Indiana initially assumed that the chlorine in their systems would deactivate the *E. coli* bacteria and as such would not contribute to an exceedance of the recreational use water quality standard. Since the issuance of the permits, Indiana determined that there is no conclusive, direct correlation between total residual chlorine levels and *E. coli* bacteria, and therefore, considers the three dischargers sources of *E. coli*. The last remaining discharger does not have a sanitary component to its discharge, therefore it is not a source of *E. coli*.

The City of Bloomington and Monroe County each have a municipal separate storm sewer system (MS4) in the Beanblossom Creek Watershed. These storm sewer systems are regulated by Indiana's Storm Water General Permit Rule 13. Indiana Department of Environmental Management (IDEM) issued these permits during the development of the TMDL (City of Bloomington Permit INR040136, and Monroe County's Permit INR040086). Indiana states that it is difficult to determine if these storm sewer systems are significant sources of *E. coli* contributing to the impairment caused by *E. coli* in the Beanblossom Creek Watershed. The new permits require the municipalities to monitor the discharge from their respective outfalls. The permits also require that the discharges do not cause or contribute to violations of *E. coli* Water Quality Standard (WQS).

There is one confined feeding operation (CFO), Wagler Farms, Log Number 6191, in the watershed. Indiana's CFO regulations, 327 Indiana Administrative Code 16, require that operations "not cause or contribute to an impairment of surface waters of the state." Since there were no enforcement actions on the date the TMDL was sent to U.S. EPA, the CFO was not considered a significant source of *E. coli*. Indiana does believe that there are a number of small, unregulated, livestock operations in the watershed that may significantly contribute to *E. coli* levels in the watershed.

Indiana has determined that wildlife is a nonpoint source of *E. coli* contributing to the impairment of the Beanblossom Creek Watershed's recreational use water quality standard. Many animals spend time in or around waterbodies. Deer, geese, ducks, raccoons, turkey, and other animals are all potential sources of *E. coli*.

The State determined that another source of nonpoint contribution is failing septic tanks. Almost all the homes within Beanblossom Creek Watershed discharge directly into septic tanks. Based on Brown and Monroe County Health Department communications, the failing septic tanks are sources of *E. coli* impairment in waterbodies.

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During the listing process, the State gives each TMDL a priority ranking and scheduling. The TMDL development schedule corresponds with IDEM's basin-rotation water quality monitoring schedule to take advantage of all available resources for TMDL development. Prioritization is based on whether the designated uses are being met, the magnitude of the impairment, and other plans for the watershed.

U.S. EPA finds that the TMDL document submitted by 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)). U.S. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

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

Comment:

Use Designation: The impaired designated use addressed in this TMDL is for total body contact recreational use during the recreational season found at 327 IAC 2-1-6(d). The recreational season is from April 1st through October 31st. 327 IAC 2-1-6(d) establishes the total body contact recreational use *E. coli* WQS for all waters in the non-Great Lakes system as follows:

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E. coli bacteria, using membrane filter (MF) count, shall not exceed on hundred twenty-five (125) per 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 are also covered under 327 IAC 2-1-6(d).

For the Beanblossom Creek Watershed, during the recreation season the target level is set at the *E. coli* WQS of 125 per 100 milliliters (ml) as a 30-day geometric mean based on not less than five samples equally spaced over a thirty day period. As stated above, the *E. coli* WQS has a geometric mean and a single sample maximum. The TMDL explains “[t]he geometric mean for *E. coli* WQS allows for the best characterization of the watershed. Therefore, this *E. coli* TMDL is concentration-based consistent with 327 IAC 5-2011.1(b) and 40 CFR, Section 130.2(i) and the TMDL is equal to the geometric mean *E. coli* WQS for each month of the recreational season (April 1, through October 31).” U.S. EPA agrees with this approach, since it is consistent with U.S. EPA’s rule 40 CFR 131, *Water Quality Standards for Coastal and Great Lakes Recreation Waters*. In this document, U.S. EPA explains that “the geometric mean is a 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 . . .”.

U.S. EPA finds that the TMDL document submitted by 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. U.S. 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.

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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. U.S. 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:

IDEM used the linkage between the *E. coli* concentration in Beanblossom Creek Watershed and the potential sources to provide the basis for the development of the TMDL. There is a cause and effect relationship between the selected indicator and sources. The State's analysis of the data for the Beanblossom Creek Watershed indicates that a significant amount of *E. coli* load enters the Beanblossom Creek Watershed through both wet (nonpoint sources) and dry (point sources) weather.

For most pollutants, TMDLs are expressed on a mass loading basis (e.g., pounds per day). For *E. coli*, however, mass is not necessarily an appropriate measure, and U.S. EPA allows pathogen TMDLs to be expressed in terms of organism counts (or resulting concentration). This pathogen TMDL is concentration based consistent with IDEM's water quality standard 327 IAC 2-1-6(d), and the TMDL is equal to the target concentration of 125 *E. coli* per 100 ml.

U.S. EPA agrees with the concentration based approach for pathogen TMDLs, since it is consistent with U.S. EPA's document, *Protocol for Developing Pathogen TMDLs*. The approach used by IDEM meets the requirements of 40 C.F.R. 130.2(i): "TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures."

IDEM used a load duration curve approach in developing this TMDL. An explanation of the approach is found in the *Linkage Analysis and E. coli Load Duration Curves* section of the TMDL (Pages 6 - 7 of the TMDL). In summary, continuous flow data is required, and was provided by U.S. Geological Survey (USGS) gage 03354000 located in Centerton, Indiana. The gage is located upstream from the mouth of Beanblossom Creek on the West Fork of the White River. In order to obtain an estimated flow for the watershed, the drainage area was calculated at

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the mouth of Beanblossom Creek Watershed (193 square miles) and compared to the West Fork of the White River (2521 square miles). The calculated flow number and the drainage area for Beanblossom Creek Watershed were then used to create the load duration curves (attachment D of the TMDL).

The State concluded that *E. coli* sources to Beanblossom Creek Watershed arise from a mixture of dry and wet weather conditions, and that there is no single critical condition that would achieve the *E. coli* WQS. The load duration curve represents pollutants during both dry 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 were considered when developing the curve. The TMDL, however, is not load based but concentration based and the load allocation is equal to *E. coli* WQS for each 30 days of the recreational season (April 1- October 31).

IDEM's pathogen TMDL approach is based upon the premise that all discharges (point and non-point) must meet the *E. coli* WQS when entering the waterbody. If all sources are meeting the WQS at discharge, then the waterbody will by definition meet the WQS and the designated use. IDEM has charted under what flow conditions the water quality exceedances occur. Exceedances that occur during low flow conditions include those from septic systems and exceedances that occur during higher flow events include run-off. 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 regime. For example, if loads are significant during storm events, implementation efforts can target those best management plans that will most effectively reduce storm water run-off. This allows for a more efficient implementation effort.

The load duration curve is a cost-effective TMDL implementation approach, while still addressing the reductions necessary to meet WQS for *E. coli* bacteria. The approach also aids in sharing the responsibility for *E. coli* reduction among various municipalities in the TMDL watershed, which encourages collective implementation efforts. IDEM has incorporated recent data (2001) providing a more focused assessment of *E. coli* exceedances in the watershed, determining where load reductions are most appropriate in the Beanblossom Creek Watershed.

Weaknesses of the TMDL analysis are that nonpoint source 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 weaknesses discussed in this TMDL are outweighed by the strengths of the TMDL approach,

discussed above, and is appropriate based upon the information available. In the event that *E. coli* levels do not meet the WQS in response to implementation efforts described in the TMDL submittal (Page 10 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 Beanblossom Creek Watershed are most appropriate.

U.S. EPA finds that the TMDL document submitted by IDEM satisfies all requirements concerning this third element.

4. Load Allocations (LAs)

U.S. 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:

Because the TMDL is concentration based, the load allocation is equal to 125 *E. coli* per 100 ml (geometric mean of 5 samples equally spaced for a 30 day period), which is the chronic prong of the water quality standard.

IDEM assumes equal bacteria loads per unit area for all lands in the watershed and to the corresponding local unit of government. For this TMDL, there are ten local units of government identified. Table 3 of the TMDL lists the units of government and the corresponding percentage of land area. The table is provided below.

Table 3: Land Area Distribution for the Beanblossom Creek Watershed (copied from TMDL)

Municipality	Square Mile	Percent
Jackson Township	46.81	24
Benton Township	27.57	14
Washington Township	27.15	14
Beanblossom Township	25.76	13

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Bloomington Township	24.01	13
City of Bloomington	16.6	9
Hamblen Township	16.54	9
Richland Township	8.00	4
Hensley Township	0.15	0.08
Baker Township	0.0003	0.001
Total	192.6	100.00

There is one CFO (Table 2 of the TMDL) in the Beanblossom Creek Watershed. There is no current enforcement action on the CFO, therefore the CFO is not considered a significant source of *E. coli* for the Beanblossom Creek Watershed.

EPA finds that the TMDL document submitted by IDEM satisfies all requirements concerning this fourth element.

5. Wasteload Allocations (WLAs)

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

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. U.S. 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

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same or decreases, and there is no reallocation between the total WLA and the total LA.

Comment:

There are eight NPDES permitted point source facilities identified in the TMDL document for Beanblossom Creek Watershed (Table 1 of the TMDL). Four of these have *E. coli* limits in their permits. Three have total residual chlorine limits and one has neither *E. coli* or total residual chlorine limits.

For the point source facilities with *E. coli* limits, the limits are set at the standard for *E. coli* (both the geometric mean of 125/100 ml and single sample maximum 235/100 ml) to meet the designated recreational use. For the three permitted point sources with total residual chlorine limits, IDEM recommends that they have *E. coli* limits based on the standard in 327 IAC 2-1-6(d) placed in each of their permits in the next listing cycle.

There are two municipal stormwater communities. IDEM recently issued stormwater permits for these Municipal Separate Storm Sewer System (MS4). Guidelines for the 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). (City of Bloomington Permit INR040136, and Monroe County's Permit INR040086).

EPA finds that the TMDL document submitted by 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)). U.S. EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

Comment:

This TMDL contains an implicit margin of safety because no rate of decay was used. Since pathogenic organisms have a more limited capability of surviving outside their hosts, a rate of

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decay would normally be used. It was determined by the State, however, that it is more conservative to use the water quality standard of 125/100 ml, and not to apply a rate of decay which could result in a discharge limit greater than the water quality standard. Also, the water quality standard of 125/100 ml must be met under all flow conditions. The above assumptions meet the requirement of an implicit margin of safety.

EPA finds that the TMDL document submitted by IDEM satisfies all requirements concerning this sixth element.

7. Seasonal Variation

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

Comment:

The TMDL addresses the seasonal variation by setting allocations for the months of April through October to protect for total body contact as set out in the Indiana recreational use water quality standard at 327 IAC 2-1-6(d). Since this is a concentration based TMDL the water quality standard of 125/100 ml must be met at all flow conditions during the applicable season.

EPA finds that the TMDL document submitted by 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, U.S. 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 U.S. EPA to determine that the TMDL, including

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the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

U.S. 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, U.S. EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which does not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comment:

IDEM has some programs in place and are working on other programs to assist in meeting the Beanblossom Creek Watershed TMDL allocation and the *E. coli* WQS. The following are some of the programs used to implement the TMDL:

- NPDES - IDEM recommends the incorporation of *E. coli* permit limits based on the recreational use water quality standard into the permits of the three dischargers who do not currently have *E. coli* limits in their permits. For those dischargers who do have *E. coli* limits based on the recreational use water quality standard in their current permits, the limits will be maintained in the permit.
- Stormwater general permits (MS4)- The State issued MS4 permits to the two MS4 communities in the Beanblossom Creek Watershed. Once these permits are implemented, they will improve the water quality in the Beanblossom Creek Watershed. Indiana will use these permits to address the stormwater impacts in the Beanblossom Creek Watershed.
- CFO - the one CFO is required to manage manure, litter, and process wastewater pollutants in a manner that does not cause or contribute to the *E. coli* impairment of the watershed.
- Watershed projects - A 319 grant was awarded to Hoosier Environmental Council to complete a watershed management plan for the watershed. The council started the project in 2005.
- Potential future actions Best Management Practices (BMPs) - IDEM is looking at several types of BMPs to help in the control of nonpoint source pollution. These types of BMPs may include: Riparian area management; manure collection and storage; contour row

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crops farming practice; drift fences; and septic management/public education.

EPA finds that the TMDL document submitted by the IDEM adequately addresses this eighth element.

9. Monitoring Plan to Track TMDL Effectiveness

U.S. 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 and/or once TMDL implementation methods are in place. When the results indicate that the waterbody is meeting the *E. coli* WQS, IDEM will monitor at an appropriate frequency to determine if Indiana's 30 day geometric mean value of 125/100 ml *E. coli* is being met.

EPA finds that the TMDL document submitted by the IDEM adequately addresses this ninth element.

10. Implementation

U.S. 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, U.S. EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. U.S. EPA is not required to and does not approve TMDL implementation plans

Comment:

This TMDL does not contain a formal implementation plan. An implementation plan is not required under the U.S. EPA regulations. However IDEM did include several suggestions for

potential future implementation, see pages 10 and 11 of TMDL.

EPA finds that the TMDL document submitted by the IDEM adequately addresses this tenth element.

11. Public Participation

U.S. 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, U.S. EPA has explained that final TMDLs submitted to U.S. 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 U.S. EPA establishes a TMDL, U.S. EPA regulations require U.S. 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 U.S. EPA determines that a State/Tribe has not provided adequate public participation, U.S. EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by U.S. EPA.

Comment:

The TMDL was public noticed from August 25, 2005 to September 26, 2005. A stakeholder meeting took place on September 1, 2005, at the Brown County Public Library, located at 205 Locust Lane, Nashville, Indiana. The stakeholder meeting was held to provide an overview of the draft TMDL and an opportunity for public comments. The presentation for the public meeting was included in the final TMDL submittal. Copies of the draft TMDL were posted on the IDEM's Web site at: <http://www.in.gov/idem/water/planbr/wqs/tmdl/documents.html>. U.S. EPA sent in comments to the draft TMDL and they were adequately addressed in the final TMDL. IDEM received one public comment on the TMDL. IDEM adequately addressed the comment.

U.S. EPA finds that the TMDL document submitted by IDEM satisfies all requirements concerning this eleventh element.

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify

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whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to U.S. 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 U.S. EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and U.S. 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:

U.S. EPA received the Beanblossom Creek Watershed TMDL on March 27, 2006, accompanied by a submittal letter dated March 20, 2006. In the submittal letter, IDEM stated the attached TMDL is "the Final TMDL submission from the State of Indiana for the Beanblossom Dreek [*sic*] Watershed Segment ID# INW0221_00, INW0211_T001, INW0213_00, INW0214_T1053, INW0215_T1004, INW0216_T1005, INW0218_T1006, INW0219_T1007, INW021A_T1008, INW0212_00, INW0213_T1001, INW0213_1002, INW0213_T1003¹, INW0215_00, INW0219_00. This TMDL is being submitted per the requirement under Section 303(d) of the Clean Water Act and 40 CFR 130. The Beanblossom Creek Watershed TMDL addresses the impairment of *E. coli*". Sixteen segments are listed in the submittal letter.

U.S. EPA is approving TMDLs for the Beanblossom Creek Watershed, including some segments that were not on Indiana's approved 2004, 303(d) list but have been placed on the final 2006, 303(d) list that is under review by U.S. EPA. While developing the TMDL, portions of the watershed were resegmented and given new identification numbers and, accordingly, have been identified on Indiana's final 2006 303(d) list for U.S. EPA's approval. These segments were clearly identified in the draft TMDL (dated June 2005). The public had the opportunity to comment on the TMDLs including these resegmentations during the public comment period. The TMDL report discusses the impairment for the segments, and IDEM determined the TMDL target concentration, for all segments, based on Indiana water quality standards.

U.S. EPA believes it was reasonable for IDEM to develop TMDLs for the resegmentation in the watershed at the time of the development of the originally listed segments. Because the public had the opportunity to comment on the decision to include these resegmentations within the TMDL, as well as the target concentration based on Indiana's *E. coli* water quality standard, and because IDEM's public notice for these TMDLS and its transmittal letter of the final TMDL

¹ This should be identified as segment INW0213_T1004. See phone memo between Donna Keclik, USEPA and Staci Goodwin, IDEM dated April 5, 2006.

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states that the TMDL report is for the Beanblossom Creek Watershed, EPA believes it is appropriate to approve all sixteen submitted TMDLs at this time.

U.S. EPA finds that the TMDL document submitted by IDEM satisfies all requirements concerning this twelfth element.

13. Conclusion:

After a full and complete review, U.S. EPA finds that the IDEM submittal determines standard-based concentrations for a total of 16 TMDLs for Beanblossom Creek Watershed in Monroe and Brown Counties, Indiana. The allocations satisfy all of the elements of an approvable TMDL. This approval is for the waterbody segments and impairments set forth in the table below. Impairments addressed in these TMDLs are pathogens from the pollutant *E.coli*.

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

Waterbody Name	303(d) list ID	Segment numbers	length (miles)	Impairment	pollutant
Beanblossom Creek - Headwaters	100	INW0221_00	7.31	E. coli	E. coli
Beanblossom Creek (8 segments)	100	INW0211_T1001, INW0213_00, INW0214_T1053, INW0215_T1004, INW0216_T1005, INW0218_T1006, INW0219_T1007, INW021A_T1008	43.7	E. coli	E. coli
North Bear Fork	100	INW0212_00	9.2	E. coli	E. coli
Lick Creek	100	INW0213_T1001	4.87	E. coli	E. coli

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Bell Creek	100	INW0213_T1002	2.89	E. coli	E. coli
Bear Creek*	100	INW0213_T1004	4.42	E. coli	E. coli
Honey Creek	100	INW0215_00	5.12	E. coli	E. coli
Indian Creek	100	INW0219_00	4.31	E. coli	E. coli
Jacks Defeat Creek	122	INW021A_T1017	9.79	E. coli	E. coli

*Note Bear Creek was identified in the TMDL as segment INW0213_T1003 this was identified as a typographical error by IDEM. The correct segment ID is in the above table.