# APPENDIX M:

# IDEM'S RESPONSES TO COMMENTS RECEIVED ON IDEM'S DRAFT 2016 303(D) LIST AND CONSOLIDATED ASSESSMENT AND LISTING METHODOLOGY

## INTRODUCTION

The Indiana Department of Environmental Management's (IDEM) Office of Water Quality submitted its Integrated Water Monitoring and Assessment Report (IR) to U.S. EPA as required by the Federal Clean Water Act (CWA) Section 305(b) on April 1, 2016. The IR included Indiana's 2016 303(d) List of Impaired Waters, which is required by the CWA Section 303(d). At the time of this submission, the 90-day public comment period for the 303(d) list mandated by Indiana state law (IC 13-18-2-3) had not yet begun. The public comment period was April 6 to July 5, 2016.

Although IDEM's April 1, 2016 submission contained all the elements required by CWA Section 303(d) and the Code of Federal Regulations, IDEM is submitting this appendix to the 2016 IR as an addendum in keeping with U.S. EPA guidance (U.S. EPA, 2006), which recommends that states provide a summary of comments received along with the state's responses. This appendix provides:

- Full text copies of all public comments received on the 2016 303(d) list and the Consolidated Assessment and Listing Methodology (CALM) used to develop it.
- A summary of the public comments received on the 2016 303(d) list and CALM published on April 6, 2016 and IDEM's responses.
- IDEM's responses to U.S. EPA's comments on Indiana's 2016 Integrated Report and 2016 303(d) list, which were received on August 3, 2016.
- IDEM's responses to U.S. EPA's additional comments on Indiana's 2014 303(d), which were received on October 19, 2016.

**Pittman, Janet**

**From:** Indra Frank <IFrank@hecweb.org>
**Sent:** Tuesday, July 05, 2016 4:34 PM
**To:** Pittman, Janet
**Cc:** Tim Maloney; Jesse Kharbanda; Kim Ferraro
**Subject:** comments on 303(d) list
**Attachments:** HEC Comments 2016 Impaired Waters & Consolidated Assessment.pdf



Dear Ms. Pittman,

We appreciate IDEM's consideration of the attached comments on the draft impaired waters list. If there are any questions, please do not hesitate to contact me at this email or the phone number below.

Sincerely,

*Indra Frank, MD, MPH*
*Environmental Health & Water Policy Director*
*Hoosier Environmental Council*
*317-685-8800 x118*





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Hoosier Environmental Council
CELEBRATING 30 YEARS OF EDUCATING & ADVOCATING

3951 N. Meridian St., Ste. 100, Indianapolis, IN 46208
P 317.685.8800 F 317.688.4794
WWW.HECWEB.ORG

5 July, 2016

Janet Pittman
Administrative Assistant
Rules Development Branch
Office of Legal Counsel
Indiana Department of Environmental Management
100 North Senate Ave, MC 65-46
Indianapolis, IN 46204-2251
jpittman@idem.in.gov

RE: LSA Document #16-129 Draft 2016 List of Impaired Waters and Consolidated Assessment and Listing Methodology under Section 303(d) of the Clean Water Act

Dear Ms. Pittman;

The Hoosier Environmental Council appreciates this opportunity to comment on Indiana's draft 2016 List of Impaired Waters and Consolidated Assessment and Listing Methodology. Our comments are limited to attachments 1 and 2 to the Notice of Comment Period.

## NOC Attachment 1: Consolidated Assessment and Listing Methodology

*Delisting of Impairments*

As in previous years, Indiana's draft 2016 Consolidated Assessment and Listing Method removes waters from the 303(d) impaired list if they have a Total Daily Maximum Load (TMDL) written. We disagree with this listing method. Waters should not be removed from the 303(d) list until monitoring shows that they meet Indiana's Water Quality Standards for their designated uses. Though a TMDL represents steps that could lead to restoration of a water, if they are implemented, implementation is a prolonged and imperfect process. The existence of the TMDL alone does not

mean that water quality has been restored. Impaired waters with TMDLs should remain on the impaired waters list.

## Notice of Comment Attachment 2: Draft Assessment Methodology for Waters Designated for Public Water-Supply

*Assessment Units*

The draft assessment methodology proposes to redefine the assessment unit for streams and rivers as " the point of surface water withdrawal at the intake to 1,000 feet upstream" (pg 2). In the rivers and streams used as drinking water sources in Indiana, water moves 1,000 feet in a matter of minutes, so 1,000 feet significantly underestimates the portion of the stream or river that impacts a public water source. Essentially any contamination upstream of a drinking water intake has the potential to influence the quality of the drinking water, so we need to look further than 1,000 feet to examine the quality of a public water source.

The proposed unit of only 1,000 feet will severely limit the data used to determine whether drinking water use is supported. Samples taken in the assessment unit are compared to water quality standards. If the water in an assessment unit fails to meet the standards for use as a public water source, it will be placed on Indiana's list of impaired waters and measures can then be taken to address the impairment. If 1,000 feet is used as the assessment unit, very little of the water monitoring data currently collected will apply, and Indiana will risk missing impairments. In reality, samples taken as far away as several miles upstream from an intake will have results that are relevant to that drinking water source.

We urge IDEM to retain the current assessment units. Though any contamination upstream of an intake could influence the quality of drinking water, we acknowledge that a defined stream segment must be used in order to make the assessment manageable. The current assessment units have several advantages: they are a more accurate reflection of the water quality than 1,000 feet; they are big enough that there will be more reasonable quantities of water quality data; and retaining the current assessment units will make public water source monitoring logistically easier for the agency.

*Minimum Data Requirement for Assessment*

For chemical toxicants, the draft assessment methodology calls for a minimum of "three measurements collected within the same year at least one month apart". This means that it would be possible for a public water source to fail a water quality standard, and fail it by any amount, twice each year for five years running and not trigger assessment of use support. The way the

criteria are currently written, those two failing samples could be the only samples taken from that water source for the year, in which case 100% of samples could be failing and assessment would still not be triggered.

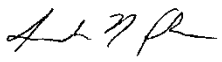
The three measurement minimum would not be as problematic if regular sampling were taking place. However, in the draft IDEM admits to a paucity of data on public water sources. The draft states that "it is unlikely IDEM will find a significant amount of existing data in its own database" and goes on to say that source water is not routinely sampled by the public water facilities, either.

Many toxicants are not removed by standard drinking water treatment, and many are tested for in finished drinking water only infrequently. Therefore, contaminants in the source water can wind up in the finished water. Tests of source water can help protect public health, if they trigger action. However, they are not going to trigger action if the waters are not assessed for use support.

We urge IDEM to take an approach that is more protective of our drinking water sources, and require assessment of use support if a public water source fails a standard for a chemical toxicant more than once in a three-year period regardless of the number of samples taken per year.

We appreciate your consideration of these comments.

Sincerely,



Indra Frank, MD, MPH
Director of Environmental Health and Water Policy

July 26, 2016

**To:** **Ms. Jody Arthur, Integrated Report Coordinator/303(d)305(b) Programs**
(jarthur@idem.IN.gov) (317-308-3179)
Indiana Department of Environmental Management
Watershed Planning and Restoration Section
100 North Senate Avenue
MC65-44 Shadeland/Indianapolis, IN 46204

**From:** **Marian Patience Harvey** (harveymarian@yahoo.com) (765-522-3506)
10073 N US Hwy 231/Roachdale, IN 46172

**Re:** **Impaired Water 303 (d) list for EPA Public Comment (due 7/5/2016)**
(http://www.in.gov/idem/nps/2647.htm)

Dear Ms. Arthur:

Thank you for our conversation last week. I appreciate your time answering my questions concerning 2016's 303(d) Impaired Waterways EPA list and IDEM's role in addressing Food Justice and the Agricultural Establishment's threat to Hoosier waterways.(See References)

I was unable to confirm the accuracy of this list locally at this time; however, in the past decade of advocacy, I have learned that despite relentless expansion of Livestock production in Confined Feeding Operations (CFOs/CAFOs) and devastation of land for chemical/fertilizer laden feed crops and ethanol, Hoosiers are not being adequately educated about our endangered waterways and profit driven resistance to address this issue despite growing Community protest.

The truth is not being told about water pollution, water scarcity, use and waste or the limited capacity/will, of Officials elected to protect Natural Resources, and the rights of Citizens, from those intent on exploitation/profit despite well documented current/future consequences.

IDEM has been submitting this Impaired Water list to the EPA for years! It's merely an exercise in bureaucratic futility unless those who know the truth about pollution/contamination take an active role in confronting unjust/abusive "accepted farming practices" protected by Right to "Farm" legislation.

It is essential to prioritize your ethical obligation not only to update this list and track point sources but also to use this information to help those of us defending the Earth, the Animals and Food Justice. We must ban the Construction/Expansion of CFOs/CAFOs!

Please refer to the following list of References to support/clarify this Comment.
Sincerely, Marian Patience Harvey

**REFERENCES:**

**"Agricultural Establishment"** refers to those who promote Confined Animal Feeding Operations, including "agribusiness corporations, major commodity organizations, the American Farm Bureau Federation, even USDA, State Departments of Agriculture and the major agricultural colleges" as defined by Dr. John Ikerd's "CAFOs or Communities: A Time of Decision." (http://www.indianacafowatch.com/index.php/new-items-of-interest/57-most-important-pos....)

**Big Ag/State Government Resistance:**
Indiana joins lawsuit to stop WOTUS Rule (http://www.hoosieragtoday.com/indiana-jjoins-lawsuit-stop-wotus-rule/)

(Indiana's 'Right -to-Farm' Bill Taking Hold in Other States (http://indianapublicmedia.org/news/agriculture-rights-protected-indiana-bill-69416)

Right to Farm Laws from Source Watch/About ALEC (http://www.sourcewatch.org/index.php?title-Right_to_Farm_Laws)

Industrial Livestock Production (http://www.sustainable.org/859/industrail-livestock-production) Communications Foundation)

**Economic, Social, Environmental, Animal Welfare Concerns:**
FAIRR Initiative/Farm Animal Investment Risk and Return 2016 report (fairr.org)

"To Feed the world, do we really need to grow more food?" http://www.csmonitor.com/Business/TheBite/2016/0621/To-feed-the-world-do-we-really...)

Environmentalists object to bill promoting farm rights/Stephanie Wang/1/13/2014....http://www.indystar.com/story/news/politics/2014/01/2013environmentalists-object-to-bill-promoting-farm-rights)

**Recent Community Advocacy:**
"White County CAFO Rule Would Join Patchwork of Regulations" (http://wbaa.org/post/white-county-cafo-rule-would-join-patchwork-regulation)
"White County CAFO Rule Would Be First of It's Kind in Indiana" (http://indianapublicmedia.org/news/white-county-cafo-regulation-kind-indiana-98697/)

Indiana Department Environmental Management

To Comments on 303 (D) Water Quality

Water quality in Indiana is largely believed, by those of us who live amongst the waters, to be in a poisonous unhealthy decline. As a 7th generation small farmer I have seen the changes in the creeks streams rivers ponds and lakes in Indiana, where we used to float and swim and fish in the small creeks they are now so polluted that I wont even touch those waters. So how did as a farmer recognize the pollution without science? 1. Seeing the trash plastics garbage etc. 2. Dead fish and other dead large and small animals 3. The terrible smell 4. Dead wood, trees and land sediment 5. Nasty tiles dumping directly into creeks 6. cloudy waters 7. Algae and weeds 8. Lack of human recreational use 9. Adjacent lands also in similar conditions as above.

There are now a lot of people with awareness of the water pollution in Indiana and I have heard many recommendations and ideas, some reasonable and some not. I will mention a few I believe to be reasonable. 1. All agricultural practices don't equally cause these problems. Some ag practices contribute heavily to pollution while others don't. There are many inexpensive sustainable practices used for many years which with education could be implemented. One seeming impossible problem is the inability to control flooding which is worse than ever, partially due to development of farms into houses. 2. Corporate animal agriculture using confined animal feeding operation techniques (CAFO) farms must be brought into the realm of testing and regulation. The numbers of animals confined, their pollutants and the inhumane treatment of those animals also must be addressed. The laws can't be just about taxes and profits.

3. Rural housing sprawl with septic tanks around ponds and lakes, run off from yards, dumping trash and pits all adding to the water pollution. 4. There is a definite disconnect between the information the public can access verses what government agencies produce. This is a tough problem given the age of computers with many land owners aging and lacking computer skills. Those farmers wishing to be good stewards talk to each other but fear the government regulatory agencies.

Yes people are talking but their voices are scattered. The influence at the statehouse is controlled by corporate agriculture lobbiests not local farmers of or rural residents. My personal efforts haven't improved anything.

So this comment recommends:

1. Find a way to connect with the public
2. Inspect CAFOs and reduce the number of animals in each facility providing healthier land, air, water animals and humans.
3. Place a moratorium on building new cafos until there is reliable research on their pollution and inhumane treatment of animals
4. Strengthen the rules reguarding CAFOs.
5. Report to government & state legislators giving them more and better information to base their judgements on. Land and water use does not just equal tax dollars.

Thank-you

Pamela Patrick – 765-720-7221 cellphone
13869 W. St. Rd. 42, Cloverdale In. 46120

## PUBLIC COMMENTS (SUMMARIZED) AND IDEM'S RESPONSES

The Indiana Department of Environmental Management (IDEM) requested public comment from April 6, 2016, through July 5, 2016, on IDEM's 303 (d) list of impaired waters and consolidated assessment and listing methodology. IDEM received comments from the following parties:

Hoosier Environmental Council (HEC)
Marian Patience Harvey (MPH)
Pamela Patrick (PP)

Following is a summary of the comments received and IDEM's responses thereto.

***Comment:*** We disagree with the listing method contained in Indiana's draft 2016 Consolidated Assessment and Listing Method, which removes waters from the 303(d) impaired list if they have a Total Daily Maximum Load (TMDL) written. Waters should not be removed from the 303(d) list until monitoring shows that they meet Indiana's Water Quality Standards for their designated uses. Though a TMDL represents steps that could lead to restoration of a water, if they are implemented, implementation is a prolonged and imperfect process. The existence of the TMDL alone does not mean that water quality has been restored. Impaired waters with TMDLs should remain on the impaired waters list. (HEC)

***IDEM's IDEM Response:*** *IDEM concurs that having an approved TMDL for an impairment does not necessarily mean that an impaired waterbody is restored. The TMDL is a starting point from which restoration can begin. It is not IDEM's intent to obscure that state of impairment of Indiana waters by placing them in Category 4A when the required TMDL is approved for one or more water quality impairments. Rather, the move to Category 4A is consistent with the regulatory framework developed and required by U.S. EPA for implementation of Section 303(d) of the Clean Water Act.*

*By definition, the 303(d) list identifies waterbody impairments that require a TMDL. Therefore, when the TMDL is approved for an impairment, it no longer meets that definition and is placed in Category 4A, which is defined by U.S. EPA as waterbody impairments for which a TMDL has been approved.*

*IDEM recognizes that the 303(d) list tells only part of Indiana's water quality story and has attempted to make all impairments, including those for which a TMDL has been approved, more obvious in a number of ways:*

- *Including them in Office of Water Quality's e303(d) online impairment mapping tool at: http://www.in.gov/idem/nps/3474.htm*
- *Providing maps with both Categories 5 and 4A in the Notice of Comment Period for the draft 303(d) list.*
- *Including them in any maps we develop to identify water quality impairments.*
- *Including them in our response to requests from the public regarding impaired waters.*

*IDEM continually seeks ways to make its 305(b)/303(d) assessment and listing processes and the results from those processes more transparent to the public.*

***Comment:*** The draft assessment methodology proposes to redefine the assessment unit for streams and rivers as "the point of surface water withdrawal at the intake to 1,000 feet upstream" (pg 2). In the rivers and streams used as drinking water sources in Indiana, water moves 1,000 feet in a matter of minutes, so 1,000 feet significantly underestimates the portion of the stream or river that impacts a public water source. Essentially any contamination upstream of a drinking water intake has the potential to influence the quality of the drinking water, so we need to look further than 1,000 feet to examine the quality of a public water source. The proposed unit of only 1,000 feet will severely limit the data used to determine whether drinking water use is supported. Samples taken in the assessment unit are compared to water quality standards. If the water in an assessment unit fails to meet the standards for use as a public water source, it will be placed on Indiana's list of impaired waters and measures can then be taken to address the impairment. If 1,000 feet is used as the assessment unit, very little of the water monitoring data currently collected will apply, and Indiana will risk missing impairments. In reality, samples taken as far away as several miles upstream from an intake will have results that are relevant to that drinking water source. We urge IDEM to retain the current assessment units. Though any contamination upstream of an intake could influence the quality of drinking water, we acknowledge that a defined stream segment must be used in order to make the assessment manageable. The current assessment units have several advantages: they are a more accurate reflection of the water quality than 1,000 feet; they are big enough that there will be more reasonable quantities of water quality data; and retaining the current assessment units will make public water source monitoring logistically easier for the agency. (HEC)

***IDEM Response:*** *IDEM carefully considered the question of how far upstream from an intake it should apply this assessment methodology and evaluated a number of options. IDEM determined that the most accurate approach would be to conduct modeling for each individual intake given the differences in flow and other variables from one stream to another. IDEM considered conducting such an effort but determined that to do so would require significant staff time and resources not presently available and would delay the development of an assessment methodology indefinitely. Such a delay would not be in the best interest of the public. Therefore, IDEM instead chose to continue development of this methodology using the Emergency Management Zone (1,000 feet from the intake) defined in the state's Source Water Assessment Plan to define assessment units for the purposes of public water supply assessments.*

*The Emergency Management Zone was developed with the same goal of protecting public water supplies, which is what this methodology seeks to do. This distance is also consistent with the human health criteria in Indiana's water quality standards that apply at "the point of water intake"*[1].

***Comment:*** For chemical toxicants, the draft assessment methodology calls for a minimum of "three measurements collected within the same year at least one month apart". This means that it would be possible for a public water source to fail a water quality standard, and fail it by any amount, twice each year for five years running and not trigger assessment of use support. The way the criteria are currently written, those two failing samples could be the only samples taken from that water source for the year, in which case 100% of samples could be failing and assessment would still not be triggered. The three measurement minimum would not be as problematic if regular sampling were taking place. However, in the draft IDEM admits to a paucity of data on public water sources. The draft states that "it is unlikely IDEM will find a significant amount of existing data in its own database" and goes on to say that source water is not routinely sampled by the public water facilities, either. Many toxicants are not removed by

[1] 327 IAC Article 2-1 and 327 IAC Article 2-1.5

standard drinking water treatment, and many are tested for in finished drinking water only infrequently. Therefore, contaminants in the source water can wind up in the finished water. Tests of source water can help protect public health, if they trigger action. However, they are not going to trigger action if the waters are not assessed for use support. We urge IDEM to take an approach that is more protective of our drinking water sources, and require assessment of use support if a public water source fails a standard for a chemical toxicant more than once in a three-year period, regardless of the number of samples taken per year. (HEC)

***IDEM Response:*** *The commenter does not distinguish between contaminants that pose an immediate, acute threat to public health and those associated with chronic exposure over time. This is an important distinction because both types of contaminants, regardless of the data minimums used in IDEM's designated use assessments, would trigger a response from IDEM. That response would differ based on the nature of the contaminant.*

*In the case of acute threats to public water supplies, it is important to note that the safety of public water supplies is regulated by the Safe Drinking Water Act (SDWA). The SDWA identifies more than 90 contaminants that all of Indiana's public water supply facilities drawing from surface water sources must test for in treated water and include requirements for reporting when exceedances of the maximum contaminant level (MCL) for a regulated contaminant occur. Furthermore, IDEM's Drinking Water Branch staff stands ready – 24 hours a day, 365 days a year – to respond to emergencies that threaten Indiana's public water supplies. Sample minimums do not apply in these cases – any number of source water test results could trigger immediate action. If any contaminant, regulated or non-regulated, is identified in source water at concentrations sufficient to pose an immediate threat to public health, IDEM will immediately dispatch staff to the facility in question to assess the situation, collect additional samples and recommend next actions necessary to protect public health. Staff will continue to work with the facility until the threat has passed.*

*IDEM's designated use support assessments trigger a different kind of action. Designated use support assessments are intended to identify persistent, watershed-based water quality impairments as opposed to short-term, event-driven source water issues or emergencies. When a water quality impairment is identified, the waterbody is added to the 303(d) List of Impaired Waters for total maximum daily load (TMDL) development. Contaminants whose effects are more chronic in nature would be addressed through TMDL development.*

*TMDL development is a resource-intensive process, which significantly increases the stakes on getting the water quality assessment right. Lakes and streams are highly dynamic systems, and chemistry results from a single water sample are representative only of the water quality at the moment the sample was collected. IDEM's minimum data requirements reflect the minimum number of results needed to estimate variance in the data set used for assessment. Understanding the variance in the data set -- how widely concentrations of a given contaminant can vary in a waterbody – provides critical context for evaluating the individual results and helps to determine whether the combined results indicate persistent water quality impairment or the inherent variability within the waterbody.*

*It should also be noted that IDEM's methods always allow for best professional judgment of its scientists when making assessments. Given this, it is not a foregone conclusion that the situation described by the commenter would not be assessed as impaired. In a situation where only two results*

*are available and both exceed the applicable criterion, if IDEM scientists believe that those results are indicative of water quality impairment, they can and will assess the waterbody as impaired.*

*IDEM's development of a water quality assessment methodology for source water was an important first step toward better protection of source waters through its Clean Water Act programs. Recognizing the overall lack of data available for source water assessments, IDEM's next step is to explore the feasibility of developing a source water monitoring program to support these assessments.*

***Comment:*** In the past decade of advocacy, I have learned that despite relentless expansion of livestock production in confined feeding operations (CFOs/CAFOs), and the devastation of land for chemical and fertilizer-laden feed crops and ethanol, Hoosiers are not being adequately educated about our endangered waterways and profit-driven resistance to address this issue, despite growing community protest. The truth is, people are not being told about water pollution and water scarcity, use, and waste, or the limited capacity and/or will of elected officials to protect natural resources and the rights of citizens against those intent on exploitation and profit, despite well-documented current and future consequences. IDEM has been submitting this Impaired Water list to the U.S. EPA for years! It's merely an exercise in bureaucratic futility, unless those who know the truth about pollution and contamination take an active role in confronting unjust and abusive "accepted farming practices" protected by the 'Right to Farm' legislation. It is essential to prioritize your ethical obligation not only to update this list and track point sources, but also to use this information to help those of us defending the earth, the animals, and food justice. We must ban the construction and expansion of CFOs and CAFOs! (MPH)

***IDEM Response:*** *IDEM seeks every opportunity to educate the public on the state of Indiana waters. In addition to publishing the 303(d) list for public review and comment every two years as required by the federal CWA and Indiana law, IDEM has also developed the e303(d) list, which is available online at http://www.in.gov/idem/nps/3474.htm to help the public more easily find water quality information for waterbodies of interest. IDEM also provides information about impaired waters through:*

- *Public meetings for total maximum daily load development and other purposes,*
- *Requested presentations*
- *Submission of 303(d)-related articles for the newsletters of outside organizations*
- *Responding to ongoing requests for water quality information*
- *Nonpoint Source Program "Success Stories" submitted to U.S. EPA, which are made available online at: https://www.epa.gov/nps/nonpoint-source-success-stories.*

*IDEM also seeks to balance the needs of all Hoosiers in fulfilling its duties as the primary state agency charged with environmental regulation: "IDEM's mission is to implement federal and state regulations to protect human health and the environment while allowing the environmentally sound operations of industrial, agricultural, commercial and government activities vital to a prosperous economy."*

*This mission requires that IDEM act objectively within the regulatory authority it is given by Indiana law. Indiana Law does not give IDEM the authority to enact a moratorium on the building of new CFOs/CAFOs in Indiana, nor can IDEM deny a permit for a CFO/CAFO if all permit requirements have been met.*

***Comment:*** There are now a lot of people with awareness of the water pollution in Indiana, and I have heard many recommendations and ideas, some reasonable and some not. I will mention a few I believe to be reasonable:

- All agricultural practices don't equally cause these problems. Some practices contribute heavily to pollution, while others don't. There are many inexpensive, sustainable practices used for many years which, with education, could be implemented.
- Corporate animal agriculture using concentrated animal feeding operation (CAFO) techniques must be brought into the realm of testing and regulation.
- Rural housing sprawl with septic tanks around ponds and lakes, run-off from yards, dumping trash, and pits all add to the water pollution.
- There is a definite disconnect between the information the public can access, versus what government agencies produce.

So, this comment recommends:

- Find a way to connect with the public.
- Inspect CAFOs and reduce the number of animals in each facility, providing healthier land, air, water, animals, and humans.
- Place a moratorium on building new CAFOs until there is reliable research on their pollution and inhumane treatment of animals.
- Strengthen the rules regarding CAFOs.
- Report to state legislators, giving them more and better information to base their judgments on.

Land and water use does not just equal tax dollars. (PP)

***IDEM Response:*** *Most of the types of pollution the commenter describes fall into the category of nonpoint source (NPS) pollution, over which IDEM has very little regulatory authority. Given this, IDEM works to educate Hoosiers on good environmental practices to minimize NPS pollution through the grants it awards through the Office of Water Quality's NPS Program – many project funded include an education component. IDEM also participates with the Indiana Conservation Partnership made up of eight agencies and organizations working to provide technical, financial, and educational assistance needed to implement conservation practices that are environmentally and economically compatible and that promote good stewardship of Indiana's soil and water resources. Other partners in the ICP include:*

- *Natural Resources Conservation Service (NRCS)*
- *Farm Service Agency (FSA)*
- *State Soil Conservation Board*
- *Indiana State Department of Agriculture (ISDA)*
- *Indiana Department of Natural Resources (IDNR)*
- *Indiana Association of Soil and Water Conservation Districts (IASWCD)*
- *Purdue University Cooperative Extension Service*

*The following is an excerpt from IDEM's 2016 Integrated Report, which describes some of the education and outreach work the ICP does:*

> *"The ICP sponsors a number of initiatives that have the potential to improve water quality in Indiana. One example is the Conservation Cropping Systems Initiative, which provides education on the use of a system of practices that promote soil health. These include cover crops, nutrient and pest management, continuous no-till/strip-till, and precision farming, all of which can provide water quality benefits. Many of the agencies*

*participating in the ICP also provide funding on a continuing or limited basis to address nonpoint source (NPS) pollution such as NRCS's Regional Conservation Partnership Program and ISDA's Clean Water Indiana (CWI) program."*

*IDEM's NPS grant program and its participation in the ICP are just two examples of how IDEM works to engage and educate Hoosiers about best management practices and other measures to help protect the environment. IDEM's 2016 Integrated Report provides a more comprehensive discussion of the agency's efforts in this regard and can be found online at: http://www.in.gov/idem/nps/2639.htm.*

*Regarding Confined Feeding Operations (CFOs) and the subset of Concentrated Animal Feeding Operations (CAFOs) which are the largest of the CFOs, Indiana State Law does not give IDEM the regulatory authority to enact a moratorium on the building of new CFOs/CAFOs in Indiana. IDEM has the authority to set appropriate permit requirements, ensure compliance and, when necessary, bring enforcement actions against operations that fail to comply with their permit requirements. IDEM also has the authority to revoke the permits of operations that routinely violate their permit requirements and has done so in the past. IDEM conducts regular inspections of all permitted animal feeding operations regardless of size:*

- *All CAFOs are inspected once every five years*
- *All CFOs are inspected once every 6-7 years,*
- *If a deficiency is found during a routine inspection, inspectors will return within 30 days to ensure the deficiency has been adequately addressed.*
- *If a complaint is lodged against a farm, it is usually inspected within a few days*

*Although CFOs and CAFOs are regulated through IDEM's Office of Land Quality (OLQ), the regulatory requirements for this program are based in large part on water pollution control laws and are intended to address the factors that pose a water quality risk from these operations and to provide the public knowledge of proposed and permitting activities. Before a CFO/CAFO permit is granted, IDEM requires the public be notified of the proposed operation so that citizens can express their support, opposition, and/or concerns regarding the facility in question.*

*In 2012, IDEM's CFO rules were revised to require all CFOs to meet the tighter requirements already in place for CAFOs.*

- *More stringent manure handling requirements regardless of size*
- *Phosphorus is now a limiting factor to be considered by all CFOs/CAFOs when determining manure application rates*
- *Surface application of manure on frozen or snow covered ground was banned for all CAFOs.*

*In February 2013, the Indiana Office of the State Chemist enacted the Fertilizer Material Use, Distribution, and Record Keeping Rule, which added another layer of oversight on manure handling from CFOs and CAFOs. This rule includes a number of requirements and restrictions intended to provide additional protections for the environment and water quality in particular. A synopsis of this rule can be found online at: http://www.oisc.purdue.edu/fertilizer/pdf/fert_use_rules_and_faq.pdf. And the full language of the rule is available at: http://www.in.gov/legislative/iac/T03550/A00080.PDF. More information regarding IDEM's regulatory program for CFOs/CAFOs can be found at: http://www.in.gov/idem/cfo/*

*With regard to keeping Indiana lawmakers informed, in 2007, the Indiana State Senate passed a resolution urging IDEM to submit an annual CFO/CAFO report to the governor, the general assembly, and the environmental quality service council that provides the following information:*

- *The number of regulated confined feeding operations (CFOs) and the number of those that are designated as concentrated animal feeding operations (CAFOs) in the state.*
- *The number of CFO/CAFO inspections conducted by IDEM and the reasons for those inspections*
- *The number of CFO/CAFO permit violations and the nature of those violations*
- *The number of new CFO/CAFO permit applications received and the number that were issued, denied or withdrawn. This information is also provided for applications for permit renewals and coverage applications.*
- *A summary of IDEM's CFO/CAFO enforcement actions including notices of violations, agreed orders, and civil penalties.*

*Although this type of resolution is not binding upon a state agency, IDEM produces this report each year to provide greater transparency into its permitting activities where CFOs and CAFOs are concerned. The language of Senate Resolution 2517-2007 can be found online at: http://www.in.gov/legislative/bills/2007/SRESP/SR0072.html. A copy of the 2016 CFO/CFO Report, which is included with other IDEM reports to the governor, the general assembly, and the environmental quality service council, is provided at the end of IDEM's responses to the comments herein.*

## U.S. EPA COMMENTS ON INDIANA'S DRAFT 2016 303(D) LIST AND CALM AND IDEM'S RESPONSES

***Appendix A***

1. **Page A-2**, **Table 1** – In the comments to the 2014 list, EPA noted a discrepancy between the total number of river miles and shoreline miles designated for PWS in the table and a footnote below the table which reported different values. IDEM responded by stating that corrections would be made after finalizing its high resolution reach index process. The current table still shows a discrepancy between the table reported numbers (365 river miles and 31 shoreline miles) and the footnote (111 river miles and 35 shoreline miles). Please clarify the discrepancy.

   ***IDEM Response:*** *IDEM is still in the process of finalizing its high resolution Reach Index. The correct values have not yet been verified. IDEM expects to have its High Resolution Reach Index finalized for the 2018 cycle at which time the total number of stream and Great Lakes shoreline miles designated for public water supply will be verified. In the meantime, IDEM has revised the values in both the table and the footnote to reflect preliminary results obtained by totaling the mileage values for the AUIDs on which intakes are located. Currently these AUIDs vary in size and together, total 354 stream miles and 35 shoreline miles. When IDEM's new assessment methodology for PWS is implemented for the 2018 cycle, the total number of miles designated for public water supply use will decrease as the new methodology limits the distance of the stream and shoreline so designated to 1,000 feet upstream of the intake.*

***Appendix L***

2. **Revisions to IDEM's Methods for Prioritizing TMDL Development** Section (**Page 4**) – The 4th paragraph states that "IDEM submitted the framework and its long term schedule to U.S. EPA on July 8, 2015, and U.S. EPA approved the Priority Framework on September 16, 2015." The final IR should be clarified to reflect that EPA does not approve State Long-term Vision Priority Frameworks. Rather we have acknowledged that the state submitted the Priority Framework, reviewed it and agreed that it meets the goals of the new Vision.
   The same comment also applies to **TMDL Development and Prioritization for All Other Indiana Waters** Section (**Page 48,** 2nd to last paragraph on section).

   ***IDEM Response:*** *Appendix L contains the public notice for the Draft 2016 draft 303(d) list that was published in the Indiana Register and as such, is now a part of the public record and not subject to revision. The corrections requested by U.S. EPA are noted and have been made instead in the revised versions of the Integrated Report (IR) on page 14 and the Consolidated Assessment and Listing Methodology (CALM) on page 41, both of which are included with IDEM's Addendum to the 2016 Integrated Report.*

3. **IDEM's Use of External Data** Section (**Page 5**, **Table 1**) – IDEM identifies the external data sources the state used for making listing decisions. If additional data sets were submitted, these should be identified, and the reasons why data was excluded should be provided.
   Additionally, IDEM stated that "Rather than investing significant time in re-evaluating data sets that may no longer be representative of current conditions, IDEM will instead contact these early EDF participants and work with them directly to submit any more current data they might have through one of the three data submittal processes built into the EDF." The final IR should clarify what

would happen in the event the last submitted data sets from these early EDF participants are the most current data available. This comment applies to the similar discussion that is on the top of **Page 40** in the "***2016 Narrative Report***".

***IDEM Response:*** *There were no new data sets submitted by external organizations for consideration in the development of the 2016 303(d) list. Contacting the submitter is the first step. If the data they originally submitted are the only data available, IDEM will evaluate those data sets on a case-by-case basis as time allows to determine if they are reliable for assessment despite their age. This information has been added to page 41 of the revised IR submitted with the 2016 addendum.*

4. **IDEM's Surface Water Quality Monitoring Strategy** Section (**Page 22)** – We recommend that IDEM identify what monitoring basin year IDEM is in, with regard to **Figure 1**, for the current list cycle (2016).

   ***IDEM Response:*** *The page and figure reference applies to the Consolidated Assessment and Listing Methodology (CALM), which is intended to be less cycle-specific in the information it provides. IDEM agrees that the information regarding the basin(s) in which IDEM focuses its monitoring efforts from cycle to cycle should be provided and therefore includes this information in Appendix G: IDEM's 305(b)/303(d) Monitoring, Assessment, Reporting and Listing Schedule.*

5. **IDEM's Surface Water Quality Monitoring Strategy** Section (**Page 24**, top paragraph) – We recommend that IDEM identify the 5 regions that the lakes and reservoirs throughout the state are divided into for purposes of monitoring. Since this monitoring approach is similar to rotating basins, it would also be helpful for IDEM to identify what monitoring region IDEM is at with regard to the current list cycle (2016).

   ***IDEM Response:*** *In 2010, the Indiana Clean Lakes Program (CLP) switched from using an approach similar to rotating basins to a randomized sampling approach with the goal of providing statistically significant lake water quality data that may eventually be applied to the entire state. Under this approach, approximately 80 waterbodies throughout the state are selected from a randomized list of all public lakes and reservoirs five acres or larger with a usable boat ramp, resulting in the monitoring of lakes throughout the state. IDEM is currently using these results on a site-specific basis in its CWA Section 314 and 305(b) assessments and is working to determine how to best report the statistical results obtained through this sampling approach. In the meantime, the CALM was revised to reflect the CLP's randomized approach to sampling Indiana's lakes and reservoirs. More information on the CLPs monitoring approach can be found online in its Lake Water Quality Assessment Reports at: http://www.indiana.edu/~clp/PUBreports.php.*

6. **Dissolved metals vs total metals data.**
   **Page 26**, **Table 7** and **Attachment 1**, **Table 6** only identifies dissolved metals data for use in metal toxicants assessments. EPA disagrees with IDEM's assessment methodology with regard to metal toxicants. As previously discussed in EPA's decision documentation for IDEM's 2010 303(d) list, EPA determined that it is appropriate to use total metals data and derived criteria for making WQS attainment status determinations and 303(d) listing decisions for Indiana waters. EPA notes that

IDEM continues to collect primarily total metals data instead of dissolved metals data, even for metals with dissolved criteria. Total metals data should be used for assessment purposes, including cases where there are insufficient dissolved metals data to assess for dissolved criteria attainment. This comment applies to the same information that is on **Table 12** of **Page A-9** in the "***Appendix A"***. The same comment also applies to the **Ohio River Assessments** Section (**Table 8** on **Page 32**), which also mentions the use of dissolved metals.

***IDEM Response:*** *IDEM maintains that its decision not to compare total metals data to the dissolved metals criteria articulated in Indiana's Water Quality Standards for the purposes of making CWA Sections 305(b)/303(d) assessment and listing decisions is appropriate. Additionally, IDEM collects dissolved metals at all of its probabilistic sampling locations and at a subset of its fixed stations. .*

7. **Ohio River use of 10% rule for toxicants.**
**Page 32**, **Table 8** – for the assessment of toxicants the table suggests that the state is using an exceedance rate cut off of 10% for evaluating attainment. It is not clear from the text if this is a reiteration of the ORSANCO 305(b) assessment process. However, for the purposes of determining attainment for toxicants the state should follow the same guidelines outlined in Table 7 for river and streams of "Not more than one exceedance of the acute or chronic criteria for aquatic life within a three year period."

***IDEM Response:*** *IDEM uses U.S. EPA guidelines for the application of toxicant results in assessments (no more than one violation in a three-year period), for all waters except the Ohio River. For the Ohio River, Indiana defers to ORSANCO's methods to evaluate toxicant results, which use the 10% rule. IDEM will take U.S. EPA's recommendation to apply the same guidelines for toxicants to the data ORSANCO collects under advisement for the 2018 cycle, which will allow the time needed for additional data analysis and discussion with ORSANCO and the other states on the Commission.*

8. **Independent Application vs Weight of Evidence (in context of ORSANCO data)**
IDEM should make independent assessment determinations based on the available data, by applying the biological data independently from the water chemistry data, rather than deferring to ORSANCO's assessments. In addition, IDEM has its own assessment unit (AU) segmentation for the Ohio River, and should be using that segmentation in its evaluation of the data applicable to each AU and to determine whether any water quality standard is being exceeded.

***IDEM Response:*** *IDEM does make its own independent assessments of the Ohio River based on the available data. When IDEM states that it "defers to ORSANCO's assessments" IDEM means that – after evaluating the available data – it concurs with ORSANCO's water quality assessment decisions.*

*In cases where IDEM does not agree with ORSANCO's assessment or can apply the data to extend an assessment beyond what ORSANCO's methods allow, IDEM's assessments for the Ohio River will diverge from those reported in ORSANCO's 305(b) report. One example of this may be found in IDEM's application of ORSANCO's water column results for total mercury. The total mercury criterion in ORSANCO's Pollution Control Standards (PCS) is expressed as a human health*

*criterion, which ORSANCO applies only to its assessments of public water supply (PWS) use support. However, the same value for total mercury appears in Indiana's WQS as a chronic aquatic life use criterion. Therefore, in addition to concurring with ORSANCO's assessments for PWS use support, IDEM also uses ORSANCO's total mercury results to make its own assessments of aquatic life use support.*

*Part of IDEM's assessment process involves actively participating in ORSANCO's 305(b) water quality assessment meetings. Every two years, ORSANCO prepares a description of the proposed methodology and the resulting assessments for review by the 305(b) workgroup, which is made up of state agency personnel in each member state and one or more U.S. EPA representatives. IDEM typically evaluates ORSANCO's assessment results prior to meeting with the 305(b) workgroup so that any assessments of concern may be discussed during the meeting. When the 305(b) workgroup reaches agreement on the methodology and the resulting assessments, the methodology is submitted to ORSANCO's technical committee for review and approval. ORSANCO will revise its assessments if needed based on decisions made by the Technical Committee regarding the assessment methodology and publishes the final results of its assessment in its 305(b) report for the Ohio River. ORSANCO is not required to develop a 303(d) List of Impaired Waters. Rather, each Commission state makes its own decisions regarding whether or not to list the Ohio River or specific reaches within it.*

*IDEM participated in the development ORSANCO's assessment methodologies that employ a weight of evidence approach and agrees with the assessments ORSANCO has made on that basis. Biological assessments provide a direct measure of the health of the aquatic ecosystem. Such assessments are able to detect impacts that may be occurring as a result of non-chemical stressors such as temperature, low dissolved oxygen levels and/or combined impacts of chemical stressors that may be occurring at concentrations not exceeding any water quality standard.*

*ORSANCO's fish community assessments of the Ohio River use the modified Ohio River Fish Index (mORFIn), which was developed based on the nationally used Index of Biotic Integrity (IBI) designed to assess smaller streams. The mORFIn has been customized to assess the Ohio River, with expected values developed for the different habitats found in this large river system. The mORFIn combines various attributes of the fish community to give a score to the river based on its biology. The total score is compared to an expected score, which varies depending on the habitat type and location. When monitoring the fish community, ORSANCO randomly selects fifteen sites in each pool, which, when combined into one score, provides a robust and representative result for the entire pool. The most recent mORFin scores for the pools noted above all ranged from good to very good. IDEM maintains that these results provide a far more direct and accurate measure of the degree to which the Ohio River supports aquatic life use than dissolved oxygen and temperature data from what the monitors located on the upstream end of five dams can independently provide.*

*IDEM can and does make its own decisions where water quality assessments of the Ohio River are concerned and believes the decision made by ORSANCO's Technical Committee to use the weight of evidence approach in its assessments of dissolved oxygen and temperature to be scientifically defensible. IDEM also recognizes the invaluable resource that ORSANCO provides in understanding the data ORSANCO collects through its monitoring programs and from other sources. ORSANCO scientists offer unparalleled expertise and a depth of knowledge that can only be obtained through*

*decades of work on this complex river, which has appropriate influence on IDEM's decision-making process regarding assessments. Given this, IDEM maintains that its application of the resulting assessments to the reaches of the Ohio River that border Indiana in its Integrated Report and 303(d) listing processes is appropriate and has carefully considered the implications of its decision.*

*With regard to how those assessments are applied, where IDEM concurs with ORSANCO's assessments, IDEM applies the results reported by ORSANCO to the individual assessment units in its Reach Index. When ORSANCO's assessments apply to an entire pool, IDEM applies the assessment to all the assessment unites (AUs) in that pool. Where ORSANCO's assessments are reported in terms of river miles that can be mapped to specific AUs along the Ohio River (e.g. recreational use assessments), IDEM applies them accordingly. IDEM does not aggregate chemistry data by pool because they are collected at targeted locations and cannot be shown to be statistically representative of the entire pool in which they were collected. In contrast, the fish community sampling locations are randomly selected allowing confident aggregation of the results from each site into one assessment. Scores are provided for each location and then aggregated into one result for the entire pool. IDEM concurs with this approach.*

9. **Page 29**, **Table 7** – Indiana Trophic State Index (TSI). The last row states that "Trophic scores and lake trends are not used to determine use support status. These assessments are conducted to fulfill Clean Water Act Section 314 reporting requirements for publicly owned lakes and reservoirs." IDEM should consider the trophic scores to determine use assessment status if the scores were decreasing over time. Such decreases could indicate threatened waters that should be listed. The final IR should clarify why TSI lake trend analyses are not being considered by Indiana to support use status determinations.
This comment also applies to **IDEM's CWA Section 314 Lakes Assessments** Section on **Page 38.**

***IDEM Response:*** *The trend assessments IDEM makes for the purposes of Clean Water Act Section 314 are not based on statistically robust methods. Rather, they are based on the best professional judgement of IDEM scientists based on small data sets with results spaced in some cases over decades. U.S. EPA's Integrated Report Guidance would seem to suggest that lakes should not be listed on a state's 303(d) list unless the state has completed a statistical analysis that can accurately predict impairment before it is verified through water quality monitoring:*

> *"EPA recommends that states consider as threatened those segments that are currently attaining [water quality standards] WQS, but are projected as the result of applying a valid statistical methodology to exceed WQS by the next listing cycle (every two years)." (U.S. EPA, 2005)*

*While IDEM's trend assessments serve to provide potentially valuable insights on what may be happening in a given lake, IDEM does not consider them reliable for the purposes of designated use support assessments under CWA Section 305(b). IDEM has revised its Consolidated Assessment and Listing Methodology (CALM) (included as Appendix N in IDEM's 2016 IR addendum) to better reflect its methods for assessing lake trends.*

*Trophic scores calculated for the purposes of CWA Section 314 trophic state assessments are never used independently to make CWA Section 305(b) assessments but are considered in the assessment decision for lakes in which total phosphorus and chlorophyll a results – the primary indicators used*

*for assessment – are inconclusive. In these cases, trophic scores indicating no eutrophication are assessed as fully supporting while those indicating eutrophic or hypereutrophic conditions are assessed as impaired.*

10. **Indiana's Assessment Methodology for Fish Consumption for Waters Other than the Ohio River** (**Page 39**) – This section states the following: "…IDEM's past and present fish consumption use assessments are a translation of the narrative portion of Indiana's WQS, which states that surface waters "**1/4 shall** be free from substances in concentrations …". The **1/4** is a typo. The correct WQS quote should state that "At all times, all surface waters outside of mixing zones shall be free of substances…"

    ***IDEM Response:*** *IDEM was unable to find the error to which U.S. EPA refers in this comment in any of the documents submitted with its 2016 Integrated Report.*

11. **Page 41, Table 16 –** Please add foot note/endnote to state what each group represents for the FCA Groups in the table.

    ***IDEM Response:*** *This information is contained within the table itself. Each group identified in the second row of the section for mercury or PCBs represents consumption advice, which appears in the third row.*

12. **Aquatic Life Use Assessments** Section (**Page 44**) – EPA supports the continuing effort by IDEM to re-evaluate the fish and macroinvertebrate biological indicators.

    ***IDEM Response:*** *IDEM appreciates U.S. EPA's support.*

13. **TMDL Development for the Ohio River** Section (**Page 48**) – IDEM may want to reference the other EPA Regions that are involved (Regions 3 and 4), since the other states are listed.

    ***IDEM Response:*** *This addition has been made to page 41 of Appendix N (IDEM's revised Consolidated Assessment and Listing Methodology submitted with IDEM's 2016 IR addendum).*

14. **Draft Assessment Methodology for the Assessment of Waters Designated for Public Water Supply** Section (**Page 55**) – EPA supports IDEM's proactive revision of its drinking water assessment methodology to expand the definition of a source water to include surface waters with intakes for emergency water supplies.

    ***IDEM Response:*** *IDEM appreciates U.S. EPA's support.*

15. **Changes to Indiana's Reach Index to Support Water Quality Assessments of Waters Designated for PWS** Section (**Page 55**) – The last paragraph under ***Inland Lakes and Streams*** states that "For all streams, including the Ohio River, IDEM has defined assessment units (AUs) for each intake based on the "Emergency Management Zone", which begins at the point of surface water withdrawal at the intake to 1,000 feet upstream. The AUs in the Indiana Reach Index on which surface water intakes are located are currently much larger than 1,000 feet and will need to be

reindexed to accommodate these more narrowly- applied assessments." Please let us know if these AUs will be reindexed by next cycle.

***IDEM Response:*** *IDEM anticipates this re-indexing process to be complete for the 2018 cycle. Currently, IDEM is working to finalize its high resolution Reach Index in an effort to support the transition of its water quality assessment information to U.S. EPA's new ATTAINS system. This is a resource-intensive effort. IDEM will conduct the final re-indexing needed to accommodate the new assessment units needed to support IDEM's public water supply assessments as a final step in completing its Reach Index for migration to ATTAINS. While this re-indexing effort will require much less time, on the whole, finalizing the Reach Index is a time intensive effort and is highly dependent on staff resources.*

***Inquiries about specific waterbody AUs/impairments listing/delisting issues***

EPA may submit additional comments about specific waterbody AUs/impairments issues. EPA's review and approval process for the Indiana's 2012 and 2014 303(d) lists is currently ongoing. Any changes to Indiana's 2012 and 2014 303(d) lists as a result of this process, with regard to waterbody segment/impairment listings, will need to be reflected on Indiana's 2016 303(d) list, unless "good cause" for not including these changes on the list can be demonstrated.

***IDEM Response:*** *IDEM will give U.S. EPA's comments on Indiana's 2012 and 2014 303(d) lists appropriate consideration when they are received. With regard to U.S. EPA's partial approval of Indiana's 2010 303(d) list, IDEM maintains that it has already provided U.S. EPA good cause for the waters delisted and those not previously listed that U.S. EPA wishes to add to Indiana's 2012 and 2014 lists. U.S. EPA and the public may review the material IDEM has provided to U.S. EPA in support of this position online at: http://www.in.gov/idem/nps/3889.htm.*

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16. In addition to the comments above, we have the following questions regarding the **Data Management** Section (**Page 37**):

    a) Is the Assessment Information Management System (AIMS) available to the public or is this an internal database?

    ***IDEM Response:*** *The public may request AIMS data from IDEM staff or can access AIMS data directly through the Indiana Water Quality Atlas (IWQA) located at: http://www.in.gov/idem/nps/pages/iwqa/index.html. Users can query and review the data from within the IWQA application and/or export it in CSV format for use in other applications. While the chemistry and other field data are for the most part complete, it is recommended that users interested in biological data (fish and/or macroinvertebrate community results) request those data directly from IDEM staff to ensure they receive all the information associated with the sampling event(s).IDEM also uploads its AIMS data to U.S. EPA's STOrage and RETrieval (STORET) database via the Water Quality eXchange (WQX) making it publically available through the STORET interface online.*

b) How is this linked/associated with the new External Data Framework (EDF) discussed on **Page 5** of ***Appendix L***?

***IDEM Response:*** *Tier 2 and Tier 3 data submitted by external partners through the EDF will be uploaded into AIMS. The AIMS database has a fairly robust set of informational requirements for uploading data into the system. With respect to Tier 1, one of the common characteristics of Tier 1 data sets are their lack of documentation that would provide the minimum informational elements needed for upload into AIMS. Given this, IDEM is still evaluating the technical issues associated with uploading Tier 1 data into AIMS and STORET (via the WQX).*

c) How is AIMS linked to ADB?

***IDEM Response:*** *AIMS is not directly linked to the ADB electronically. However, one of the recent improvements to AIMS involved adding and populating a field in the database for each monitoring site with the unique assessment unit identifier (AUID) on which it is located. The AUID is now a common denominator between the ADB and AIMS that allows staff to quickly identify the waterbody a result was collected from on the 303(d) list and in other reports and/or to query data from ADB and AIMS and link them up within an Access database if needed for more in-depth analyses. Prior to incorporating the AUID into AIMS, in order to identify the AUIDs to which the data in AIMS apply, staff had to download the results for the site(s) from AIMS, load them into a geographical information systems (GIS) software, and use spatial joins within the software (which are prone to error) to obtain the associated AUIDs.*

d) Under the data management section IDEM states "AIMS also now allows for storage of additional water quality data from nonpoint source (NPS) projects (including estimated load reductions) and third-party datasets for potential use in assessing waters for the integrated report." Is this the first year that IDEM is using NPS data?

***IDEM Response:*** *IDEM's statement regarding estimated load reductions may be unintentionally misleading. AIMS does have the capability for storing load reduction data, however IDEM's NPS program does not use that feature. IDEM requested its contractor build that functionality into the database in the event IDEM might need to extract results for waters in the vicinity where load reduction estimates for best management practices (BMP) were recorded or to plan sampling activities in the vicinity of a BMP installation. IDEM has delayed using this feature pending U.S. EPA's further development of U.S. EPA's ATTAINS system, which may provide an alternative way to link water quality monitoring data from nonpoint source (NPS) projects and other third party data sets to the load reduction estimates made by NPS projects.*

*IDEM assumes that U.S. EPA's question regarding the use of NPS data refers to IDEM's use of these data in its CWA 305(b)/303(d) assessment and listing processes. Prior to the improvements to AIMS that now allow the storage of NPS data electronically, IDEM would consult with the NPS Program Quality Assurance Officer to identify any NPS data sets that might meet the data quality requirements now built into the External Data Framework (EDF) for Tier 3 data, which is the level needed to use the data in IDEM's water quality assessments. Now, staff is able to obtain NPS data directly from AIMS for more efficient review. To date, no NPS project has been found to attain the level of data quality required for CWA Section 305(b) assessments. However, IDEM staff in other*

*program areas have indicated an interest in using third party data in various ways. More information on IDEM's use of secondary data, including NPS project data, can be found in the technical guidance for the EDF at: http://in.gov/idem/cleanwater/files/edf_guidance_technical.pdf*

## U.S. EPA'S OCTOBER 19, 2016 COMMENTS ON INDIANA'S 2014 303(D) LIST AND CALM AND IDEM'S RESPONSES

1. The table below includes a series of AU/impairment combinations removed from Indiana's 2014 303(d) list to Category 4A based on segmentation tracking of previously approved TMDLs (Table 7 of IR Appendix I). Please provide the requested clarifications or explanations regarding the specific AUs.

***IDEM Response:*** *In 2015, IDEM completed its statewide high resolution (HR) Reach Index for the 2014 cycle and is now performing an extensive review to:*

- *Ensure all AUIDs were indexed in a manner consistent with IDEM's indexing "rules" and to identify and correct other remaining issues*
- *Complete any remaining small scale indexing that needs to be done (e.g. to support application of site-specific criteria, IDEM's new public water supply assessment methodology, etc.).*
- *Develop a comprehensive and quality-assured segmentation tracking record for U.S. EPA and IDEM to use in answering any questions that arise regarding the listing status of impaired waters*

*IDEM anticipates completing this review and finalizing its HR Reach Index for the 2018 cycle. In the meantime, IDEM is also working to cross-walk the AUIDs in previously approved TMDLs to their new AUIDs in the HR Reach Index. Initially this effort was started independently from the review of the HR Reach Index. However, IDEM soon realized it best to prioritize its TMDL cross-walk work to those basins in which the review of the HR Reach Index has been completed to ensure that any questions are resolved based on records that have been finalized and not likely to change.*

*TMDL crosswalks are completed using a map verification process. Map verification involves using a geographical information system (GIS) software to map all of the AUIDs in the approved TMDL against the Reach Index for each cycle to ensure that only the AUIDs for the actual stream reaches approved in the TMDL are placed in Category 4C. IDEM has determined that map verification, while a lengthy process, is the best way to produce reliable TMDL crosswalks.*

| ASSESSMENT UNIT ID | ASSESSMENT UNIT NAME | CAUSE OF IMPAIRMENT | COMMENT |
|---|---|---|---|
| INW01C6_02 | PLEASANT RUN CREEK | E. COLI | INW01C6_02 is a resegmentation product of INW01DB_00 (which is not an AU included in TMDL report cited in Table 7). According to EPA approval records, the approved TMDL cited didn't address all the tributaries to the West Fork of the White River, and PLEASANT RUN CREEK isn't mentioned in the list of addressed tributaries included under the approved TMDL report. Please provide further information that clarifies/justifies how the AU/E. coli impairment is addressed by the approved TMDL cited (For example, relevant sampling site information related to a calculated TMDL load that addresses the AU).<br><br>***IDEM Response:*** *This AUID was moved to Category 4A based on IDEM's preliminary TMDL cross-walks. Map verification for this TMDL has not been completed because the review of Indiana's HR Reach Index for the basin in which it is located has not yet been done. IDEM will move this impairment back to Category 5 pending map verification for this TMDL. this change will be reflected in an addendum to the 2016 IR in:*<br>• *Appendix D: Status of Category 4 Waters (Revised)*<br>• *Appendix I: Indiana's Consolidated List (Revised)*<br>• *M.S. Excel version of the 2016 listing tables provided with the addendum (Revised).* |

| ASSESSMENT UNIT ID | ASSESSMENT UNIT NAME | CAUSE OF IMPAIRMENT | COMMENT |
|---|---|---|---|
| INA0445_T1001 | BLUE CREEK - UNNAMED TRIBUTARY | E. COLI | According to EPA approval records, these AUs/impairments were moved to Cat4A based on St. Marys River watershed E. coli TMDL approved 8/21/2006 instead of TMDL report cited in Table 7; AUs are resegmentation products of INA0445_00. Please verify/clarify.<br><br>***IDEM Response:*** *The TMDL to which these impairments were keyed in Table 7 is incorrect. The correct TMDL is that cited in U.S. EPA's comment, which appears as number 24 in Appendix H, Table X as "Total Maximum Daily Load for E. coli Impairment St. Marys River Watershed and Maumee River, Adams and Allen Counties". These impairments are correctly accounted for in IDEM's 2016 IR submittal in Appendix D: Status of Category 4 Waters. No further corrections are needed.* |
| INA0445_T1002 | DUER DITCH | E. COLI | |
| INA0445_T1003 | BLUE CREEK - UNNAMED TRIBUTARY | E. COLI | |
| INW0231_T1002 | LITTLE RICHLAND CREEK | E. COLI | According to EPA approval records, INW0231_T1002 isn't included in the list of addressed AU IDs under the approved TMDL report cited in Table 7. The only LITTLE RICHLAND CREEK included in the cited TMDL was AU ID INW0241_T1164. Please provide further information that clarifies/explains how the AU/E. coli impairment is addressed by the approved TMDL cited (For example, relevant sampling site information related to a calculated TMDL load that addresses the AU).<br><br>***IDEM Response:*** *This AUID was moved to Category 4A based on IDEM's preliminary TMDL cross-walks. Map verification for this TMDL has not been completed because the review of Indiana's HR Reach Index for the basin in which it is located has not yet been done. IDEM will move this impairment back to Category 5 pending map verification for this TMDL. This change will be reflected in an addendum to the 2016 IR in:*<br>• *Appendix D: Status of Category 4 Waters (Revised)*<br>• *Appendix I: Indiana's Consolidated List (Revised)*<br>• *M.S. Excel version of the 2016 listing tables provided with the addendum (Revised).* |
| ING0331_01 | NOLANDS FORK | E. COLI | According to EPA approval records, ING0331_01 isn't included in the list of addressed AU IDs under the approved TMDL report cited in Table 7. Please provide further information that clarifies/explains how the AU/E. coli impairment is addressed by the approved TMDL cited (For example, relevant sampling site information related to a calculated TMDL load that addresses the AU).<br><br>***IDEM Response:*** *This AUID was moved to Category 4A based on IDEM's preliminary TMDL cross-walks. Map verification for this TMDL has not been completed because the review of Indiana's HR Reach Index for the basin in which it is located has not yet been done. IDEM will move this impairment back to Category 5 pending map verification for this TMDL. This change will be reflected in an addendum to the 2016 IR in:*<br>• *Appendix D: Status of Category 4 Waters (Revised)*<br>• *Appendix I: Indiana's Consolidated List (Revised)*<br>• *M.S. Excel version of the 2016 listing tables provided with the addendum (Revised).* |

| ASSESSMENT UNIT ID | ASSESSMENT UNIT NAME | CAUSE OF IMPAIRMENT | COMMENT |
|---|---|---|---|
| INB0711_02 | TURKEY CREEK | E. COLI | According to EPA approval records, INB0711_02 isn't included in the list of addressed AU IDs under the approved TMDL report cited in Table 7 (Upper Wildcat Creek Watershed, Howard, Tipton, Grant, and Madison E. coli TMDL approved 9/24/2010, TMDL ID 39364). Please provide further information that clarifies/explains how the AU/E. coli impairment is addressed by the approved TMDL cited (For example, relevant sampling site information related to calculated TMDL load that addresses the AU).<br><br>***IDEM Response:*** *The original AUID for this reach was INB0715_00, which was included in the list of AUIDs approved for the Upper Wildcat Creek Watershed TMDL. This reach will remain in Category 4A. Please see the table below for a complete segmentation record for INB0711_02.* |

| *2006 AUID* | *2008 AUID* | *2010 AUID* | *2012 AUID* | *2014 AUID* | *FINAL AUID* |
|---|---|---|---|---|---|
| *INB0715_00* | *INB0715_01*<br>*INB0715_01A*<br>*INB0715_T1001* | *INB0711_02* | *INB0711_02* | *INB0711_02* | *INB0711_02* |

| ASSESSMENT UNIT ID | ASSESSMENT UNIT NAME | CAUSE OF IMPAIRMENT | COMMENT |
|---|---|---|---|
| INB0713_T1004 | TURKEY CREEK - UNNAMED TRIBUTARY | E. COLI | According to EPA approval records, INB0713_T1004 isn't included in the list of addressed AU IDs under the approved TMDL report cited in Table 7 (Upper Wildcat Creek Watershed, Howard, Tipton, Grant, and Madison E. coli TMDL approved 9/24/2010, TMDL ID 39364). Please provide further information that clarifies/explains how the AU/E. coli impairment is addressed by the approved TMDL cited (For example, relevant sampling site information related to calculated TMDL load that addresses the AU). |
| INB0722_01A | UNNAMED STREAM (CLINTON-CARROLL COUNTY LINE) | E. COLI | According to EPA approval records, INB0722_01A isn't included in the list of addressed AU IDs under the approved TMDL report cited in Table 7 (Middle Fork Wildcat Creek Watershed, Clinton, Carrol, Tippecanoe, and Howard Counties E. coli TMDL approved 9/24/2010, TMDL ID 39363). Please provide further information that clarifies/explains how the AU/E. coli impairment is addressed by the approved TMDL cited (For example, resegmentation information of the previous corresponding related ID that was listed/included in submitted TMDL, or relevant sampling site information related to the calculated TMDL load that addresses the AU). |
| INB0722_T1010 | WILDCAT CREEK, MIDDLE FORK - UNNAMED TRIBUTARY | E. COLI | According to EPA approval records, INB0722_T1010 (previous ID INB0732_T1038) isn't included in the list of addressed AU IDs under the approved TMDL report cited (Middle Fork Wildcat Creek Watershed, Clinton, Carrol, Tippecanoe, and Howard Counties E. coli TMDL approved 9/24/2010, TMDL ID 39363). Please provide further information that clarifies/explains how the AU/E. coli impairment is addressed by the approved TMDL cited (For example, resegmentation information of the previous corresponding related ID that was listed/included in submitted TMDL, or relevant sampling site information related to the calculated TMDL load that addresses the AU). |
| INB0722_T1011 | WILDCAT CREEK, MIDDLE FORK - UNNAMED TRIBUTARY | E. COLI | According to EPA approval records, INB0722_T1011 (previous ID INB0732_T1039) isn't included in the list of addressed AU IDs under the approved TMDL report cited in Table 7 (Middle Fork Wildcat Creek Watershed, Clinton, Carrol, Tippecanoe, and Howard Counties E. coli TMDL approved 9/24/2010, TMDL ID 39363). Please provide further information that clarifies/explains how the AU/E. coli impairment is addressed by the approved TMDL cited (For example, resegmentation information of the previous corresponding related ID that was listed/included in submitted TMDL, or relevant sampling site information related to the calculated TMDL load that addresses the AU). |
| INB0742_04 | WILDCAT CREEK, LITTLE | E. COLI | According to EPA approval records, INB0742_04 (previous ID INB0723_T1010) isn't included in the list of addressed AU IDs under the approved TMDL report cited in Table 7 (Middle Fork Wildcat Creek Watershed, Clinton, Carrol, Tippecanoe, and Howard Counties E. coli TMDL approved 9/24/2010, TMDL ID 39363). Please provide further information that clarifies/explains how the AU/E. coli impairment is addressed by the approved TMDL cited (For example, resegmentation information of the previous corresponding related ID that was listed/included in submitted TMDL, or relevant sampling site information related to TMDL load calculated that addresses the AU). |

***IDEM Response:*** *All of these AUIDs were moved to Category 4A based on IDEM's preliminary TMDL cross-walks. Map verification for these TMDLs (the Upper Wildcat Creek Watershed and the Middle Fork Wildcat Creek Watershed) has since been completed and show that these AUIDs were not included in the TMDLs approved. IDEM will move these impairments back to Category 5. These changes will be reflected in an addendum to the 2016 IR in:*

- *Appendix D: Status of Category 4 Waters (Revised)*
- *Appendix I: Indiana's Consolidated List (Revised)*
- *M.S. Excel version of the 2016 listing tables provided with the addendum (Revised).*

2. The table below includes a series of AU/impairment combinations removed from Indiana's 2014 303(d) list based on IDEM's ongoing review of its 303(d) list (Table 11 of IR Appendix I). Please provide the requested clarification.

| ASSESSMENT UNIT ID | ASSESSMENT UNIT NAME | CAUSE OF IMPAIRMENT | COMMENT |
|---|---|---|---|
| INP0931_01 | HUNLEY CREEK | SILTATION | According to Table 11, this impairment was inadvertently placed in Category 5 under its new AUID in 2014, but was approved for Category 4C in 2006. INP0931_01 is a resegmentation product of INP0941_00. According to EPA approval records, INP0941_00 was moved to 4C for habitat alterations only in 2006. Is Indiana now moving this AU to 4C for the siltation cause of impairment? And if that is the case is Indiana using the same 4C rationale of "Hydromodification (channelization) and Habitat Modifications (other than hydromodification) as source of pollution"? Please clarify.<br><br>***IDEM Response:*** *IDEM originally moved INP0931_01 to Category 4C in error. Upon further investigation has determined that Hunley Creek's siltation impairment should have remained in Category 4A based on information contained in the IDEM April 21, 2008 memorandum, "Source Identification of Low Dissolved Oxygen, Nutrients, and Siltation in the Hunley Creek Watershed". In this memo, the siltation impairment is attributed to land use practices, not natural conditions as would be required to support a Category 4C listing: "Siltation is also a listed impairment of the Upper Hunley Creek basin, which is most likely a result of poor land use practices."*<br>*The following recommendations provided in the memo are relevant to siltation and support the listing of this impairment in Category 5:*<br>• *Use of conservation tillage strategies, including no-till, should be strongly encouraged throughout the watershed to aid in the reduction of soil erosion and siltation.*<br>• *Best management land use practices should also be encouraged including the use of buffer strips in row cropped areas of the basin.*<br>• *Riparian vegetation should be allowed to grow, including trees, which would minimize stream bank erosion and increase shading.*<br>*Based on these findings, and the fact that there are a number of measures that can be taken to reduce sedimentation in Hunley Creek, IDEM will move INP0931_01 back to Category 5. This change will be reflected in an addendum to the 2016 IR in:*<br>• *Appendix D: Status of Category 4 Waters (Revised)*<br>• *Appendix I: Indiana's Consolidated List (Revised)*<br>• *M.S. Excel version of the 2016 listing tables provided with the addendum (Revised).* |

| *Assessment Unit ID (2002)* | *Assessment Unit ID (2006)* | *Assessment Unit ID (2008)* | *Assessment Unit ID (2010)* | *Assessment Unit ID (2012)* | *Assessment Unit ID (2014)* | For each of these resegmentation product new IDs, please provide the AU ID information for the original prior AUs that were listed and resegemented. | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **ASSESSMENT UNIT ID** | **ASSESSMENT UNIT NAME** | **CAUSE OF IMPAIRMENT** | **COMMENT** |
| *INB0316_00* | *INB0316_00* | *INB0316_00* | *INB0316_00* | *INB0315_T1005* | *INB0315_T1005* | INB0315_T1005 | MISSISSINEWA RIVER - UNNAMED TRIBUTARY | E. COLI | ***IDEM Response:*** *This reach was added to Category 5 for E.coli with IDEM's April 1, 2016 submittal of its Integrated Report (IR). IDEM has verified it has no data to support this impairment. This reach will be moved from Category 5 to Category 3 with IDEM's Addendum to its 2016 IR.* |
| *INB1065_00* | *INB1065_00* | *INB1065_00* | *INB1065_00* | *INB1053_01* | *INB1053_01* | INB1053_01 | SUGAR MILL CREEK | E. COLI | ***IDEM Response:*** *IDEM has verified this impairment and will add it to Category 5 with IDEM's addendum to its 2016 IR.* |
| *INB1066_00* | *INB1066_00* | *INB1066_04* | *INB1066_04* | | | | | | |
| *INW0448_00* | *INW0448_00* | *INW0448_00* | *INW0448_00* | *INW0448_00* | *INW0448_00* | *INW0448_00* | *Brandywine Creek* | *E. coli* | ***IDEM Response:*** *This reach was placed in Category 5 for E.coli in 2014 as a function of early re-indexing in this watershed. This reach has been re-indexed into INW0434_01, which is correctly listed for E. coli in Category 5 of the 2016 draft 303(d) list submitted to U.S. EPA on April 1, 2016. INW0448_00 has been retired. No further corrections are necessary.* |
| | *INW0448_T1001* | *INW0448_T1001* | *INW0448_T1001* | *INW0448_T1001* | *INW0434_T1003* | INW0434_T1003 | CLARK DITCH | E. COLI | ***IDEM Response:*** *This reach was added to Category 5 for E.coli with IDEM's April 1, 2016 submittal of its Integrated Report (IR). IDEM has verified it has no data to support this impairment This reach will be moved from Category 5 to Category 3 with IDEM's Addendum to its 2016 IR.* |

3. Please provide the missing hardness information corresponding to the metal samples for the monitoring stations/ sampling events included under the excel file named *IR2012-14_Metal-Subset-CaCO3-request.xlsx* that EPA provided as an attachment.

***IDEM Response:*** These data were emailed to Vilma Rivera-Carrero at U.S. EPA on January 6, 2017.

## REFERENCES CITED IN IDEM'S RESPONSES


Indiana Department of Environmental Mangement, 2008. *Source Identification of Low Dissolved Oxygen, Nutrients, and Siltation in the Hunley Creek Watershed.* April 21, 2008 Memorandum from T. Beckman, IDEM Office of Water Quality Assessment Branch to Jody Arthur, IDEM Office of Water Quality, Watershed Planning Branch. Indianapolis, IN: Indiana Department of Environmental Management.

U. S. Environmental Protection Agency. 2005. *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act, July 29, 2005.* Washington, D.C.: U.S. Environmental Protection Agency.