Review of
Indiana's 2020 Section 303(d) List of Impaired Waters

I. Introduction and Summary of this Action

Pursuant to Sections 303(d) and 305(b) of the Clean Water Act (CWA or Act) and the U.S. Environmental Protection Agency's (EPA) implementing regulations at 40 C.F.R. § 130.7, the State of Indiana is required to submit a list of impaired waters and a water quality report every two years.

In 2006, EPA issued guidance for integrating the development and submission of Section 305(b) water quality reports and Section 303(d) lists of impaired waters.[1] This guidance recommends that states develop an Integrated Report (IR) that places all waters into one of five assessment categories, with Category 5 consisting of any water quality-limited segments for which available information indicates that at least one designated use is not being supported or is threatened, and for which a Total Maximum Daily Load (TMDL) is needed. EPA's action is limited to waterbody segments and causes of impairment included in Category 5, which comprises the State's Section 303(d) list.

The Indiana Department of Environmental Management (IDEM) submitted its 2020 Section 303(d) lists on January 19, 2021.[2] Based upon the review of this submittal, EPA is partially approving and partially disapproving Indiana's 2020 listing of water quality-limited segments pursuant to Section 303(d) of the CWA and the implementing regulations at 40 C.F.R. § 130.7.

EPA is approving the waterbodies and causes of impairment identified by the State on the 2020 Section 303(d) list (Table 1 of Enclosure 3). However, EPA is disapproving Indiana's decision not to include in its 2020 Section 303(d) list certain waters impaired for metals. EPA finds that IDEM has not assessed attainment of "applicable water quality standards" pursuant to 40 C.F.R. § 130.7(b)(3), has not evaluated all existing and readily available water quality-related metals data and information to develop the 303(d) list pursuant to 40 C.F.R. § 130.7(b)(5), and has not provided a rationale pursuant to 40 C.F.R. § 130.7(b)(6) for its decision not to list these waters. EPA is identifying segments for inclusion on the list of water quality-limited segments (WQLSs) (Table 12 of Enclosure 3) still requiring TMDLs under Section 303(d) of the CWA and the implementing regulations 40 C.F.R. § 130.7. EPA will provide public notice and an opportunity to comment on its decision to add the waters identified in Table 12 of Enclosure 3 to the State's 303(d) list. After considering the public comments, EPA will make any appropriate revisions to the 303(d) list and transmit the determination to IDEM pursuant to 40 C.F.R. § 130.7(d)(2).

EPA's approval/disapproval authority extends only to the waterbodies and causes of impairment listed in Category 5 of the IR (State's Section 303(d) list), with the exception of any waters that are within Indian Country as defined in 18 U.S.C. § 1151. EPA is taking no action to approve or disapprove the State's list with respect to any waters that are within Indian Country. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under Section 303(d) for those waters. The

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[1] See *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* (EPA, July 29, 2005) https://www.epa.gov/tmdl/integrated-reporting-guidance-under-cwa-sections-303d-305b-and-314.

[2] On January 19, 2021, EPA received Indiana's final 2020 Section 303(d) list) that was submitted through the Assessment, Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS), which is EPA's new electronic system to accept and track 303(d) submissions and actions. Therefore, EPA's action applies to the assessment data contained in ATTAINS as well as the narrative report attached to the submission.

statutory and regulatory requirements, and EPA's review of Indiana's compliance with each requirement, are described in detail below.

II. Statutory and Regulatory Background

A. Identification of WQLSs for Inclusion on Section 303(d) Lists

Section 303(d)(1) of the Act directs states to identify those waters within their respective jurisdictions for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standards (WQSs) (these waters are referred to as "water quality limited segments" as defined in 40 C.F.R. § 130.2(j)), and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or non-point sources, pursuant to EPA's long-standing interpretation[3] of Section 303(d) of the Act.

States do not need to list WQLSs for which the following controls are adequate to implement applicable water quality standards: (1) technology-based effluent limitations required by the Act; (2) more stringent effluent limitations required by state, local, or federal authority; and (3) other pollution control requirements required by state, local, or federal authority. 40 C.F.R. § 130.7(b)(1). All other WQLSs that still require TMDLs must be listed.

B. Evaluation of Existing and Readily Available Water Quality-Related Data and Information

In developing Section 303(d) lists, states are required to assemble and evaluate all existing and readily available water quality-related data and information. 40 C.F.R. § 130.7(b)(5). This includes, at a minimum but not limited to, existing and readily available data and information about the following categories of waters: (1) waters identified as partially meeting or not meeting designated uses, or as threatened, in the state's most recent Section 305(b) report; (2) waters for which dilution calculations or predictive models indicate non-attainment of applicable standards; (3) waters for which water quality problems have been reported by government agencies, members of the public, or academic institutions; and (4) waters identified as impaired or threatened in a non-point assessment submitted to EPA under Section 319 of the Act. In addition to these categories, states are required to evaluate any other existing and readily available data and information; although, states may decide to not use particular data or information in determining whether to list particular waters as long as the state provided a sufficient basis.

States must provide documentation to EPA to support the state determination to list or to not list waters. 40 C.F.R. § 130.7(b)(6). Such documentation must include, at a minimum, the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; (3) a rationale for any decision to not use any existing and readily available data for any category of waters; and (4) any other information requested by EPA.

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[3] See Pronsolino et al. v. Marcus et al., 91 F. Supp.2d 1337, 1347 (N.D. Ca. 2000).

C. Establishment of a Priority Ranking

Section 303(d)(1)(A) of the Act requires that states establish a priority ranking for listed waters. States must include a priority ranking for all listed WQLSs and must identify those WQLSs targeted for TMDL development in the next two years. 40 C.F.R. § 130.7(b)(4). In prioritizing and targeting waters, states must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. States may consider other factors relevant to prioritizing waters for TMDL development.

D. Definition of Applicable Water Quality Standards

For purposes of identifying waters for the Section 303(d) list, the term "applicable water quality standards" refers to standards established under Section 303 of the Act, including numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements. 40 C.F.R. § 103.7(b)(3). Section 303(d) of the Act and its implementing regulations require the states to identify the impaired waters within their boundaries and that EPA approve or disapprove the states' Section 303(d) lists for those waters.

E. EPA Tribal Consultation

Consistent with the *EPA Policy on Consultation and Coordination with Indian Tribes* (https://www.epa.gov/tribal/epa-policy-consultation-and-coordination-indian-tribes), dated May 2011, EPA consults and coordinates with Indian tribes where EPA decisions may impact tribal interests. On January 21, 2021, EPA sent a tribal consultation invitation letter to the Pokagon Band of Potawatomi Indians (the only federally recognized tribe in Indiana) offering the opportunity to consult with EPA on its review of Indiana's 2020 303(d) list of impaired waters.[4]

A conference call was held on February 4, 2021, with the representatives from the Pokagon Band of Potawatomi Indians Tribe that expressed interest to discuss tribal concerns and offer formal consultation. None of the attending tribal representatives expressed an interest in formal consultation. Instead, an informational meeting was held, and EPA answered questions regarding the CWA 303(d) program process.

III. Analysis of Indiana's Submission

A. Identification of WQLS, and Evaluation of Existing and Readily Available Water Quality-Related Data and Information

EPA has reviewed IDEM's description of the data and information it assembled and evaluated to identify impaired waters within its boundaries, its assessment methodology for developing its 2020 Section 303(d) list, and other relevant information submitted by IDEM (see Enclosure 2 and Enclosure 3). EPA's review of Indiana's 2020 Section 303(d) list considers whether the State assembled and evaluated all existing and readily available water quality-related data and information and identified waters that do not attain water quality standards.

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[4] See email dated 1/21/21 from Vilma Rivera-Carrero, EPA to Matthew Wesaw, Chairman of the Pokagon Band of Potawatomi Indians, with attached tribal invitation letter.

Regarding the data and information, with the exception of the issues discussed in Section III. D. ii. below, EPA concludes that the State of Indiana satisfied the regulatory requirement to assemble and evaluate all existing and readily available data and information, including data and information relating to the categories of waters specified in 40 C.F.R. § 130.7(b)(5). In addition, the State provided a description of the data and information used and, where appropriate, a reasonable rationale for not using particular existing and readily available water quality-related data and information as a basis for listing waters or impairments.

IDEM collected data in accordance with its water quality monitoring strategy (WQMS), which employs a basin rotation approach (revised from a five-year to a nine-year basin rotation) to monitor for CWA purposes. IDEM used data it collected from various state monitoring programs[5] and data collected by other organizations to develop its 2020 IR. The types of data collected consist mainly of chemical (water, sediment, and fish tissue), physical (habitat, flow data), and biological (fish community, macroinvertebrates, and *E. coli*) monitoring information. The State reviewed these data for the purposes of making Sections 305(b) assessment and 303(d) listing decisions using IDEM's consolidated assessment and listing methodology (CALM).[6]

In addition to the water quality data IDEM collects, the agency reviews data and information from other sources for potential use in its CWA assessments, including data collected through partnerships with other state and federal agencies.[7] For the data solicitation, IDEM currently uses its External Data Framework (EDF)[8] that provides a systematic and streamlined process for external organizations to share the water quality data they collect with IDEM for possible use in its CWA assessment and listing processes and other water quality programs. IDEM evaluates any external data submitted and does not rely upon data that does not meet IDEM's QA/QC requirements as identified in the State's quality assurance project plan (QAPP).[9] Currently, IDEM is working on developing a QAPP Tool that will assist EDF participants with creating the QAPP documentation needed to support and evaluate the quality of the monitoring data collected.

In addition to the data collection efforts described above, Indiana public noticed its draft 2020 Section 303(d) list in the Indiana Register and on IDEM's website starting on January 29, 2020 and ending on April 28, 2020. Aside from EPA's comments, IDEM received no comments from the public. Copies of EPA's comments and the State's responses were included in the submittal package and reviewed by EPA.[10]

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5 IDEM's data-collection sampling programs include: Probabilistic Monitoring, Fixed Station Monitoring, Contaminants Monitoring, Watershed Characterization, Performance Measures Monitoring, Special Studies, Clean Lakes and Nonpoint Source Program grant projects.

6 See Appendix G of the 2020 Indiana IR; and Priority Rankings provided under ATTAINS electronic submission.

7 See page 4 of 2020 Indiana IR Narrative.

8 See EDF information on IDEM's website at http://in.gov/idem/cleanwater/2485.htm

9 See IDEM's *Quality Assurance Project Plan for Indiana Surface Water Quality Monitoring and TMDL Programs, 3rd Revision*, October 2004. See also IDEM's *Quality Assurance Project Plan for Indiana Surface Water Programs, 4th Revision*, March 2017.

10 See Appendix K of the Indiana 2020 IR. See also email to Vilma Rivera-Carrero from Jody Arthur dated 09/08/2020.

B. Priority Ranking and Targeting

EPA has reviewed Indiana's priority ranking of listed waters for TMDL development for the 2020 Section 303(d) list[11] and concludes that the State provided "a priority ranking for all listed waterbody segments still requiring TMDLs, taking into account the severity of pollution and the uses to be made of such waters" as required by 40 C.F.R. § 130.7(b)(4).[12] In general, IDEM's TMDL development schedule corresponds with IDEM's rotating basin monitoring schedule unless there is a significant reason to deviate from that schedule. This strategy allows IDEM to take advantage of all available resources for TMDL development by targeting Section 303(d) listed waters in a given basin for additional monitoring as sampling crews are working in that basin. Indiana's waterbodies were given a priority ranking for TMDL development based on relevant factors such as: specific designated uses; the magnitude of the impairment; the amount of readily available and representative data; relative complexity and ability to characterize the impairment; and level of activities occurring in the watershed (e.g., local interest by active watershed groups). For the 2020 list, as part of the implementation of the CWA Section 303(d) Program Vision, IDEM developed a TMDL Program Priority Framework (included in Appendix E of the IN's 2020 IR submittal) which included a long-term schedule that identified a series of waterbody segments and impairments (E. coli, dissolved oxygen, and impaired biotic communities) with a higher priority for TMDL development by 2022. All other waterbody segments and impairments listings have been given a lower priority for TMDL development.

The regulations at 40 C.F.R. § 130.7(b)(4) also require that Section 303(d) lists identify waters targeted for TMDL development in the next two years. EPA refers to this identification as the two-year schedule. EPA reviewed Indiana's two-year schedule for targeting the 2020 Section 303(d) listed waters for TMDL development (Table 11 of Enclosure 3)[13] and concludes that IDEM has identified those waterbody segments targeted for TMDL development and completion in the next two years, as required by 40 C.F.R. § 130.7(b)(4).

C. EPA's Previous Related Actions on Indiana's Section 303(d) List

On May 8, 2013, EPA partially approved with respect to the impaired waters identified on Indiana's 2010 list, which was submitted on November 30, 2010, but disapproved the State's decision to not include a series of WQLSs and associated metal pollutant causes of impairment. The basis for the partial disapproval was EPA's determination that the State did not meet the requirements to assess its waters against the "applicable water quality standards" (40 C.F.R. § 130.7(b)(3)); did not assemble and evaluate all readily available data (40 C.F.R. § 130.7(b)(5)); and did not provide an adequate rationale or good cause to not use the data (40 C.F.R. §§ 130.7(b)(6)(iii), (iv)). After public notice of the listing additions and consideration of public comments, on May 14, 2014, EPA affirmed its decision to add 129 waterbody segments and 139 associated metal impairments to the 2010 list.[14]

On May 9, 2019, EPA partially approved and partially deferred with respect to Indiana's 2012, 2014, 2016, and 2018 Section 303(d) lists. EPA approved the impaired waters identified on Indiana's 2012,

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[11] See Appendix E of the 2020 Indiana IR. Priority Rankings for all listings in IN's 2020 303(d) were included in the assessment data contained in ATTAINS.

[12] Federal regulations do not require EPA approval of the substance of the priority rankings or schedules.

[13] See Appendix E of the 2020 Indiana IR.

[14] See documents pertaining to EPA's review of Indiana's 2010 303(d) list dated 5/8/2013 and 5/14/2014.

2014, 2016, and 2018 Section 303(d) lists, which were submitted on December 28, 2012, September 29, 2015, February 23, 2017, and August 17, 2018, respectively. However, EPA deferred its action on Indiana's 2012, 2014, 2016, and 2018 Section 303(d) lists with respect to certain metal causes of impairment, pending further discussion with the State.

D. EPA's Partial Approval/Partial Disapproval of Indiana's 2020 Section 303(d) List

In reviewing Indiana's 2020 Section 303(d) list, which was submitted on January 19, 2021, EPA first reviewed the methodology used by the State to develop its Section 303(d) list, in light of the State's federally-approved water quality standards and then reviewed the Section 303(d) list of impaired waters and impairment causes. EPA's review also included an examination of whether the State assembled and evaluated existing and readily available water quality-related data and information and identified waters not attaining applicable water quality standards. Additional details on EPA's analysis are provided in Enclosure 2 and Enclosure 3.

Based upon the review of this submittal, EPA is partially approving and partially disapproving Indiana's 2020 listing of water quality-limited segments pursuant to Section 303(d) of the CWA and the implementing regulations at 40 C.F.R. § 130.7.

i. Partial Approval Action

Based on its review of Indiana's 2020 Section 303(d) list submittal, EPA has concluded that, with the exception described under Section III. D. ii. below, Indiana identified the impaired waters within its boundaries on its Section 303(d) list and, thus, complied with the requirements set forth under Section 303(d) of the CWA and 40 C.F.R. § 130.7. Additional details on EPA's analysis are provided in Enclosure 2 and Enclosure 3. EPA's partial approval of Indiana's 2020 Section 303(d) list extends to the waterbody segments and corresponding impairments in Category 5 of the IR that are included under Table 1 of Enclosure 3.

ii. Partial Disapproval Action

EPA is partially disapproving based on IDEM's decisions not to use the total recoverable metals data to assess whether the segments were attaining numeric dissolved metals criteria and not to use the calculated derived metal values to assess attainment of the narrative toxics criteria[15]. As a result of these decisions, Indiana's final 2020 Section 303(d) list improperly omitted certain waterbody segments that EPA has determined are impaired for certain metals (lead and iron). Some of these waterbody segments and metal impairments were previously added by EPA to Indiana's 2010 list as discussed in Section III. C. above.

EPA has identified segments that are impaired because data show they do not attain:

- Indiana's dissolved criteria for lead at 327 IAC 2-1-6, Table 6-2; or
- Indiana's narrative criterion at 327 IAC 2-1-6(a)(2) numerically expressed as IDEM's "derived criteria," herein referred to as "derived values" for iron.

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[15] 327 IAC 2-1-6(a)(2) states that "At all times, all surface waters outside of mixing zones shall be free of substances in concentrations that on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants."

IDEM's rationales for not including these water quality limited segments impaired by metals in the final 2020 303(d) list consisted of the following:

- Using the total recoverable metals results, where more reliable dissolved metals data are not also available, to assess attainment of dissolved metal criteria for 305(b) assessments, 303(d) listing decisions or TMDL development is not appropriate because doing so may result in an overestimation of toxicity; and
- Using derived values for 305(b) assessments, 303(d) listing decisions, or TMDL development is not appropriate because derived values have not undergone Indiana's full rulemaking process prescribed by IC 13-14-9 and IC 4-22-2 and therefore have not had adequate due process and public participation.[16]

IDEM acknowledges its use of derived values in setting permit limits, but notes that the permitting process is not subject to state law requirements applicable to rulemaking and affords due process protection to potentially affected parties. IDEM maintains that the 303(d) listing process differs from the permitting process in that it results in TMDLs and WLAs that affect NPDES permitting decisions, and affected parties do not have advance notice or an opportunity to dispute these determinations.

EPA disagrees with IDEM's decisions to not include the waterbody segments and metal impairments on its 2020 303(d) list for the following reasons:

a) IDEM's decision not to use total recoverable metals data to assess whether waters are attaining the dissolved metals criteria, where there are insufficient dissolved metal data

The State's WQS have included promulgated numeric dissolved metal criteria for certain metals[17] since 2005. Prior to the final 2010 list submittal, IDEM evaluated and used total recoverable data to assess metal criteria attainment. IDEM's probabilistic monitoring program collects dissolved metals data, while the fixed station monitoring program collects total recoverable metals data.

While EPA agrees that the dissolved metal fraction more closely approximates the bioavailable fraction of metal in the water column, EPA does not agree that available total recoverable metals data should be dismissed solely on the grounds that dissolved metals data would be preferable if they existed for these waters. EPA recommends the use of metal translators[18] as a scientifically accepted practice to estimate dissolved metals concentrations in waterbodies based upon the total

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16 See Office Memorandum: *Use of Derived Criteria as Basis for Establishment of Total Maximum Daily Loads ("TMDLs") and Listing of Impaired Waters Under CWA Section 303(d)* (IDEM, March 4, 2010).

17 For waters within the Great Lakes system, Indiana's WQS contain dissolved metal criteria for arsenic (III), cadmium, chromium (III), chromium (VI), copper, nickel, mercury, selenium and zinc (327 IAC 2-1.5-8, Table 8-1). The criterion maximum concentration (CMC) and criterion continuous concentration (CCC) columns of Table 8-1 contain total recoverable metals criteria (numeric and hardness-based). The criterion for the dissolved metal is calculated by multiplying the appropriate conversion factor by the CMC or CCC.
For waters outside the Great Lakes system, Indiana's WQS contain total recoverable metal criteria for mercury and selenium (327 IAC 2-1-6, Table 6-1) and dissolved metal criteria for arsenic (III), cadmium, chromium (III), chromium (VI), copper, lead, nickel, silver and zinc (327 IAC 2-1-6, Table 6-2). The acute aquatic criterion (AAC) and chronic aquatic criterion (CAC) columns of Table 6-2 contain total recoverable metals criteria (numeric and hardness-based). The criterion for the dissolved metal is calculated by multiplying the appropriate conversion factor by the AAC or CAC.

18 See *Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria*, Martha Prothro, October 1, 1993. Attachment 3 [p. 29]

recoverable metals data. Because NPDES permit limits must be expressed in terms of total recoverable metal unless specified exceptions are met (40 C.F.R. § 122.45(c)), translators are commonly used for permits with applicable dissolved criteria.[19] EPA concludes there is strong scientific support for the use of existing and readily available total recoverable metals data to assess the attainment of dissolved metal criteria and does not think it appropriate for IDEM to decline to use these data for water quality assessments.

EPA finds the State has not provided an adequate rationale for its decision to not use total recoverable metals data, nor has it demonstrated good cause for not including waters on the list for which the total recoverable metals data indicate impairment.

b) IDEM's decision not to assess narrative criteria

In compiling their section 303(d) lists, states are required to assess state waters in light of "any water quality standard applicable to such waters." 33 U.S.C. § 1313(d)(1)(A). For the purposes of compiling the list, the term ''water quality standard applicable to such waters'' and ''applicable water quality standards'' refer to those water quality standards established under Section 303 of the Act, including numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements." (40 C.F.R. § 130.7(b)(3)).

Indiana's WQS include narrative criteria[20] and methods[21] the state may use to calculate a numeric expression (Tier I and Tier II) of the narrative criteria for substances for which numeric criteria are not specified in the WQS ("derived values") to ensure that the concentration of a substance or combination of substances does not become acutely or chronically toxic to aquatic organisms, wildlife and human health. The procedures for calculating derived values, which are included in Indiana WQS, were promulgated in accordance with Indiana law and approved by EPA and provide a mechanism to allow Indiana to consider the latest science and toxicity data and develop a numeric benchmark to determine whether or not the prohibition on toxic conditions contained in Indiana's narrative criterion is or is not attained.

While IDEM is required to assess attainment of its narrative criteria to prevent toxic conditions, IDEM is not required[22] to only use the procedures prescribed under Indiana's WQS for calculating a numeric expression of the State's narrative criterion to assess attainment of the narrative criteria. The State may select a different value basis to assess whether the readily available data demonstrate attainment of the State's narrative criterion. However, the value basis selected to assess the attainment of the State's narrative criterion must prevent toxicity to aquatic life and protect the aquatic life use of the waters.

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19 See *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion*, June 2006. EPA 823-B-96-007.

20 Indiana's narrative criteria at 327 IAC 2-1-6 (2) states: "At all times, all surface waters outside of mixing zones shall be free of substances in concentrations that on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants."

21 See Methods for deriving Tier I criteria and Tier II values described in: 327 IAC 2-1.5-Sections 11 and 13 through 16 (for Tier I) and Sections 12-16 (for Tier II) for waters within the Great Lakes system; 327 IAC 2-1 Sections 8.2, 8.3 and 8.9 for waters outside the Great Lakes system.

22 327 IAC 2-1-6(a)(2)(C)

Consequently, if a derived value was calculated using the procedures prescribed under Indiana's approved WQS, unless the State has identified a different scientific basis (i.e. new toxicity and bioavailability data) that justifies no longer using it, the derived value should be used to evaluate attainment of the State's narrative criterion for purposes of water quality assessment.

Additionally, EPA notes that there was notice of, and opportunity for public comment provided on the use of derived values. First, the public had opportunity to comment on the derived values methodology when IDEM proposed to adopt it into the State's WQS. Second, the public has the opportunity to comment on the use of the derived values when the proposed 303(d) list of impaired waters is publicly noticed. Third, the public has the opportunity to comment when the State develops TMDLs for those impaired waters, which includes WLAs, based upon the derived values. Finally, individual permittees can comment and challenge any proposed effluent limits based upon the derived values.

Even if IDEM believes itself to be somehow prohibited by state law from applying the derived values, EPA is bound by federal law to evaluate the list against approved WQS including narrative criteria, and for the reasons noted above, EPA finds that use of the derived values as a means of implementing the narrative criteria is appropriate under the Clean Water Act and EPA's implementing regulations. By excluding the use of derived values calculated for certain metals (aluminum being the exception),[23] based on the IDEM's March 4, 2010 legal opinion, Indiana failed to consider all "applicable water quality standards" for listing waters as required under 40 C.F.R. § 130.7(b)(3) and failed to "assemble and evaluate all existing and readily available water quality-related data and information to develop the [section 303(d) list]" as required under 40 C.F.R. § 130.7(b)(5). EPA concludes the State neither provided an adequate rationale for excluding the use of derived value for iron in compiling its list nor demonstrated good cause for not including certain waters on the list based on derived value for iron as required under 40 C.F.R. § 130.7(b)(6).

As discussed above, IDEM has not provided an adequate rationale for not using derived value and total recoverable metals data to identify waterbody segments impaired by certain metals. EPA finds that Indiana has not considered "applicable water quality standards" pursuant to 40 C.F.R. § 130.7(b)(3), has not evaluated existing and readily available water quality-related metals data and information to develop the 303(d) list pursuant to 40 C.F.R. § 130.7(b)(5), and has not demonstrated good cause for not listing a group of water quality-limited segments impaired for metals pursuant to 40 C.F.R. § 130.7(b)(6). Therefore, EPA is partially disapproving Indiana's 2020 303(d) list, pursuant to Section 303(d) of the Clean Water Act and 40 C.F.R. § 130.7(d)(2) for not listing certain waters based on total recoverable metals data and derived metal values.

iii. EPA's Identification of Additional Waterbodies for Inclusion on Indiana's 2020 303(d) List

In light of the partial disapproval action, EPA has identified waterbody segments and metals impairments for inclusion on Indiana's 2020 303(d) list (Table 12 of Enclosure 3), based on EPA's assessment[24] of the metals data[25] supplied by IDEM. EPA will provide the public an opportunity to

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[23] See Section B. 1. (pages 3 - 4) of Enclosure 2.

[24] See EPA's Metal Assessments Tables (electronic file) in the Administrative Record.

[25] See Compilation of emails from IDEM to EPA with attached metal assessment data.

comment on the addition of these waterbody segments and metal impairments and will consider comments received in deciding whether to make any revisions pursuant to 40 C.F.R. § 130.7(d)(2).

EPA performed water quality assessments for determining the designated use (aquatic life) support status for waterbody segments with regard to metals, by assessing dissolved criteria and narrative criteria attainment based on total recoverable metals, as detailed below.

1. Water quality sampling data for metals, supplied by IDEM, were evaluated on a site-by-site basis (i.e. all sampling locations applicable to an individual waterbody segment) and assessed according to the magnitude and frequency of the exceedance(s) of Indiana's WQS. Consistent with IDEM's assessment methodology, EPA identified waterbody segments as impaired for metals in instances where more than one exceedance of the chronic criteria or values[26] or acute criteria or values[27] for aquatic life occurred in the sample data set (of 3 or more samples) within a 3-year period. In one instance, EPA also identified a waterbody segment (AUID INB11F4_T1004) as impaired for metals because, although only two data points were available, both data points exceeded the chronic and acute criteria for aquatic life within a 3-year period, which is a definitive violation of Indiana's acute aquatic life criteria, regardless of what a third data point might indicate.
2. To evaluate the attainment of narrative criteria, EPA considered all available data, including total recoverable metals data, and Indiana's derived values[28] to identify the waterbody segments attainment status using the methods described above in bullet 1. With the exception of aluminum (discussed in detail at Section B. 1. of Enclosure 2), derived values are generally calculated by IDEM consistent with the methods contained in Indiana's water quality standards at 327 IAC 2-1-8.2 and 327 IAC 2-1-8.3). This approach is consistent with EPA's guidance for deriving numeric aquatic life criteria. EPA considers IDEM's derived values to be an appropriate method for interpretating Indiana's narrative WQS and suitable for use in its waterbody assessments for parameters without numeric water quality criteria adopted into Indiana's water quality standards.
3. When there were insufficient total dissolved metals data, EPA calculated metal translators[29] to estimate the ambient dissolved metal fraction based upon available total recoverable metal data to identify exceedances of Indiana's dissolved metal criteria values[30], as outlined above in bullet 1, to assess the waterbody segments attainment status.

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26 4-day average concentration

27 Daily max concentration

28 IDEM has **derived values** for certain metals, calculated based on Indiana's adopted and EPA-approved methods for deriving a numeric expression of the State's narrative criteria. These criteria include both Acute and Chronic Aquatic Life criteria for **antimony, barium, beryllium, boron, cobalt, iron, manganese, molybdenum, silver, strontium, thallium and vanadium**.

29 EPA performed a site-specific metal data analysis to develop a method to translate measured total recoverable metals data for Indiana sites without measured dissolved metals data for estimating the dissolved fraction. EPA compiled and compared samples with paired metal data, where both total recoverable and dissolved metals were collected, from existing sites in Indiana. EPA calculated dissolved to total recoverable metal ratios based on these data. As a result of this analysis, EPA determined the following metal conversion factors (based on the 25th percentile of the reported sampling results): 0.52 for Copper, 0.65 for Nickel, 0.36 for Zinc, 0.38 for Chromium and 0.40 for Lead. These calculated conversion factors were used as metal translators to estimate the ambient dissolved metal fraction based upon the available total recoverable metals data. See email to Vilma Rivera-Carrero from Jonathan Burian dated 11/04/2020.

30 IDEM has **promulgated numeric criteria** for certain metals such as **arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc**. These criteria, apart from mercury and selenium, are expressed as dissolved criteria by using a conversion factor to convert the total recoverable metal criteria. IN's metals promulgated numeric criteria include both Acute and Chronic Aquatic Life criteria, except for silver which only has Acute criteria.

Table 12 of Enclosure 3 identifies the waterbody segments and metals impairments listings that EPA is identifying for inclusion on Indiana's 2020 303(d) list (Category 5 of the IR) based on EPA's assessment of the available metals data. EPA's water quality assessments of:

- derived values led to EPA identifying waterbody segments for inclusion on the State's 2020 303(d) list for iron impairments.[31]
- dissolved criteria, based on total recoverable metal data, led to EPA identifying waterbody segments for inclusion on the State's 2020 303(d) list for lead impairments.[32]

EPA's additions include 100 new impairments to 98 waterbody segments currently listed in Category 5 for other impairments (**shown in bold font**), and 17 waterbody segments with 17 impairments that are being newly listed in Category 5 (shown in regular font). Some of these waterbody impairments listings had been previously added by EPA to Indiana's 2010 303(d) list (shown with **2010 Prior ID**).

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31 See Section B. 1. of Enclosure 2 for details regarding the basis for no longer including waterbody segments on the 303(d) list based on IN's 2005 derived value for aluminum.

32 Potential elevated dissolved copper concentrations were found in sampling results of raw water at a few public water supply facilities following intake from the Lake Michigan. No Lake Michigan waterbody segments for copper were included on the 303d list on the basis that these concentrations may not represent ambient conditions in the lake, due to concentrations results potential biased due to the raw water exposure to brass piping (based on email from Martha Clark Mettler, IDEM to Dave Pfeifer, EPA dated 1/15/2021).