

Fundamentally Different Factors Variance Application for the Duke Energy Indiana, LLC Edwardsport IGCC Station

Response to Comment Document

In a letter dated April 27, 2016, Duke Energy Indiana, LLC (Duke Energy), which owns and operates the Edwardsport Integrated Gasification Combined Cycle (IGCC) Station (Edwardsport), submitted a request for a fundamentally different factors (FDF) variance from the effluent limitations applicable to gasification wastewater for certain parameters in Title 40 of the Code of Federal Regulations (40 C.F.R.) § 423.13(j)(1)(i). EPA Region 5 public noticed its tentative decision on the Edwardsport FDF variance in the Vincennes Sun on August 9, 2017 and the public comment period closed on September 8, 2017. This document provides responses to all comments submitted on EPA's tentative decision for the Edwardsport FDF variance.

1. Comment Received from Center for Biological Diversity

The Center for Biological Diversity would like to offer the following comments in opposition to the EPA's tentative decision to grant the Edwardsport Integrated Gasification Combined Cycle ("IGCC") a "Fundamentally Different Factors" ("FDF") variance establishing less stringent effluent limitations for mercury and total dissolved solids ("TDS") for gasification wastewater at the Edwardsport IGCC. By proposing weaker effluent limitations for mercury and TDS, EPA will be authorizing higher levels of pollution than would otherwise occur into the nearby White River, which is home to four federally endangered species of freshwater mussel: the Fanshell (*Cyprogenia stegaria*), the fat pocketbook (*Potamilus capax*), the rough pigtoe (*Pleurobema plenum*), and the sheepsnose (*Plethobasus cyphus*). Because this discretionary decision by the EPA would adversely affect these protected species, the EPA must consult under Section 7 of the Endangered Species Act ("ESA") before proceeding.

The Center for Biological Diversity ("Center") is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has more than 1.3 million members and online activists dedicated to the protection and restoration of endangered species and wild places. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life.

Section 7 of the Endangered Species Act ("ESA") requires each agency to engage in consultation with the U.S. Fish and Wildlife Service to "insure that any action authorized, funded, or carried out by such agency...is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of [critical] habitat..."¹ Agency "action" is broadly defined in the ESA's implementing regulations to include "(a) actions intended to conserve listed species or their habitat; (b) the promulgation of regulations; (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or (d) actions directly or indirectly causing modifications to the land, water, or air."²

¹ 16 U.S.C. § 1536(a)(2).

² 50 C.F.R. §402.02.

As the Fish and Wildlife Service’s consultation handbook explains, an action agency may make an initial “no effect” or “may affect” determination to determine whether or not consultations are required.³ EPA can only avoid undertaking informal or formal consultations when “the action agency determines its proposed action will not affect listed species or critical habitat.”⁴ The handbook defines “may affect” as “the appropriate conclusion when a proposed action may pose any effects on listed species or designated critical habitat.”⁵ A “may affect” determination is appropriate even when the action agency believes that its actions will have either beneficial or uncertain effects because the action agency is not the expert in determining how its actions will impact threatened and endangered species.

Under the joint regulations implementing the ESA, if an impact on a listed species is predicted to occur, then the EPA must undergo consultations with the Services.⁶ If the action agency elects to first complete an informal consultation, it must first determine whether its action is “not likely to adversely affect” (NLAA) a listed species or is “likely to adversely affect” (LAA) a listed species.⁷ The Services define “NLAA” determination to encompass those situations where effects on listed species are expected to be “discountable, insignificant, or completely beneficial.”⁸ Discountable effects are limited to situations where it is not possible to “meaningfully measure, detect, or evaluate” harmful impacts.⁹ Discountable and insignificant impacts are rare if an agency’s actions will cause harmful effects.

Under the informal consultation process, if the agency reaches an NLAA determination, and the U.S. Fish and Wildlife Service concurs in that determination, then no further consultation is required. In contrast, if the action agency determines that its activities are likely to adversely affect listed species, then formal consultations must occur.

EPA may, of course, skip the informal consultation process and move directly to the formal consultation process. During the formal consultation process, the Fish and Wildlife Service will assess the environmental baseline — “the past and present impacts of all Federal, State, or private actions and other human activities in an action area, the anticipated impacts of all proposed Federal projects in an action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions that are contemporaneous with the consultation in process”¹⁰ — in addition to cumulative effects to the species — “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation” — and determine if the agency action jeopardizes the continued existence of each species impacted by the agency action.¹¹

³ U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act (hereafter “CONSULTATION HANDBOOK”) at 3-12.

⁴ Id.

⁵ Id. At xvi.

⁶ Id. At xv.

⁷ Id.

⁸ Id.

⁹ Id.

¹⁰ Id. at xiv.

¹¹ Id. at xiii.

In the context of the environmental baseline, EPA must evaluate the impacts of pollution from the Edwardsport facility to a scenario in which zero discharge is occurring. As both the 9th and 10th Circuits have explained, the proper baseline for this consultation would assume that the Edwardsport facility exists, but that the facility is not in operation since its discharge and operations are within the EPA's discretion.¹² The continued operation of Edwardsport does not constitute a past impact of Federal action and should not be included in the environmental baseline. Even if EPA chooses to use a legally invalid baseline in attempt to reach a NLAA determination — because the variance is seen as beneficial — beneficial impacts still require concurrence from the Service prior to proceeding on the approval of this variance.

The Section 7 consultation process applies to all discretionary actions,¹³ and EPA's proposed variance clearly represents such a discretionary action. As EPA explains in its decision document for the Edwardsport facility, the Clean Water Act ("CWA") requires application of national effluent limitations or categorical pretreatment standards established.¹⁴ The CWA statute provides for alternative requirements from these national requirements in limited circumstances. Under section 301(n), "the Agency *may* establish, with the concurrence of the state, an alternative requirement under §304(b)(2) or §307(b) of the CWA for a facility if that facility is fundamentally different with respect to factors (other than cost) specified in CWA §304(h) or §304(g) and considered by the Administrator in establishing such national effluent limitation guidelines or categorical pretreatment standards."¹⁵ The Clean Water Act does not require the EPA to mechanistically approve an application for a variance, but instead requires a decision within 180 days of application for a variance. The EPA has developed a set of regulations to evaluate such applications for a variance, and a set of factors to evaluate each variance.

In granting this proposed variance, EPA is setting a mercury daily maximum effluent limitation of 28 ng/L and a monthly average limitation of 11ng/L; and EPA is setting a TDS daily maximum effluent limitation of 82 mg/L and a monthly average limitation of 38 mg/L. Such levels of pollution could have significant impacts on listed freshwater mussels in the White River. Mercury is an extremely potent neurotoxin that is known to be severely harmful to freshwater mussels, which tend to bioaccumulate pollutants.¹⁶ Heavy metals are a known threat to the sheepsnose mussel,¹⁷ and is a listed threat for other freshwater mussels in several recovery plans for these types of species. Any exposure to mercury is likely to result in adverse effects on listed species, and therefore the EPA must initiate consultations prior to granting a variance.

¹² *In re Operation of Missouri River System Litigation*, 421 F. 3d. 618 (8th Cir. 2005); *National Wildlife Federation v. NMFS*, 524 F. 3d 917 (9th Cir. 2008)

¹³ *National Association of Home Builders v. Defenders of Wildlife*, 551 US 644 (2007).

¹⁴ EPA 2017 TENTATIVE DECISION TO GRANT A VARIANCE ESTABLISHING ALTERNATIVE EFFLUENT LIMITATIONS FOR GASIFICATION WASTEWATER. In the matter of: Fundamentally Different Factors Variance Application for the Duke Energy Indiana, LLC Edwardsport IGCC Station.

¹⁵ 33 U.S.C. § 1311(n); *See also*, 40 CFR § 403.13(d).

¹⁶ Naimo, Teresa J. A review of the effects of heavy metals on freshwater mussels. *Ecotoxicology* 4.6 (1995): 341-362. Keller, Anne E., and Stephen G. Zam. The acute toxicity of selected metals to the freshwater mussel, *Anodonta imbecilis*. *Environmental Toxicology and Chemistry* 10.4 (1991): 539-546.

¹⁷ *Endangered Status for the Sheepsnose and Spectaclecase Mussels*, 76 Fe. Reg. 3392 (Jan. 19, 2011).

Because this discretionary decision by the EPA would adversely affect these protected species, the EPA must consult under Section 7 of the Endangered Species Act (“ESA”) before proceeding.

EPA Response

EPA disagrees with the commenter’s position that the Agency was required by section 7(a)(2) of the ESA to consult with the Fish and Wildlife Service and National Marine Fisheries Service (the Services) prior to granting this Fundamentally Different Factors (FDF) variance. EPA is not required to consult on this action because in granting an FDF variance under section 301(n) of the Clean Water Act (CWA or the Act), the Agency lacks discretion to account for effects on species. See 50 C.F.R. § 402.03.

The CWA establishes a two-pronged approach for accomplishing its ambitious goals. First, the Act requires application of effluent limitations for point source dischargers based on technology-based effluent limitations and standards. CWA section 301(b)(1)(A) Best Practicable Technology (BPT); 301(b)(2)(A) Best Available Technology Economically Achievable (BAT); 301(b)(2)(E) and 40 C.F.R. § 122.44(a)(1). Second, where those technology-based effluent limitations are not sufficient to meet applicable water quality standards, the Act requires any more stringent effluent limitations required to attain applicable water quality standards under CWA section 301(b)(1)(C) and 40 C.F.R. § 122.44(d).

The language and legislative history of the Act’s technology-based provisions make clear that such limitations and standards must be set independently of what they achieve in terms of water quality or other benefits (including benefits to protected species or critical habitat). Instead, these limitations and standards are established based upon the performance of specified levels of pollution control technology and the economic achievability of that technology, after consideration of a number of factors specified in section 304(b) of the Act related to BAT. These factors are limited to “the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the costs of achieving such effluent reduction, non-water quality environmental impact (including energy impacts), and such other factors as the Administrator deems appropriate.” This means that even if a particular discharge limit were absolutely necessary to protect a listed species or designated critical habitat, if a technology were technologically unavailable, or economically unachievable (or has unacceptable non-water quality environmental impacts), EPA would not have discretion to promulgate that limit under these provisions of the Act, because it would not meet the statutorily prescribed preconditions to representing best available technology economically achievable.¹⁸

¹⁸ In contrast to development of technology-based limitations, EPA has discretion to consult with the Fish and Wildlife Service and National Marine Fisheries Services pursuant to section 7 of the Endangered Species Act in the context of approving a state water quality standard, promulgating its own, or when it establishes a water quality-based effluent limitation in an NPDES permit where it is the permitting authority because those actions relate to the protection of aquatic life or wildlife and EPA has ability to take into account effects on listed species and

Section 301(n) of the CWA authorizes the EPA to establish alternative requirements to those technology-based requirements established under section 301(b)(2) or section 307(b) of the CWA for a facility if the owner or operator of such facility demonstrates that the facility is fundamentally different with respect to the factors (other than cost) specified in sections 304(b) or 304(g) and considered by the Administrator in establishing such national effluent limitation guidelines or categorical pretreatment standards, as well as if certain other requirements are met. Thus, the analysis that the Agency conducts in deciding whether to grant an FDF variance to a facility discharging directly to surface waters is to evaluate the facility against the technology-based factors that the Agency considered under section 304(b) of the statute when promulgating the otherwise applicable national effluent limitations guidelines regulation. See CWA section 301(n)(1)(A).¹⁹ Under the relevant statutory provisions, EPA has no discretion to consider protection of listed species or designated critical habitat in granting or denying an FDF variance.

In *National Ass'n of Homebuilders v. EPA*, 551 U.S. 665 (2007), the Supreme Court stated (when discussing the CWA § 402(b) National Pollutant Discharge Elimination System (NPDES) permitting transfer requirements): “While the EPA may exercise some judgment in determining whether a State has demonstrated that it has the authority to carry out §402(b)’s enumerated statutory criteria, the statute clearly does not grant it the discretion to add another entirely separate prerequisite to that list. Nothing in the text of §402(b) authorizes the EPA to consider the protection of threatened or endangered species as an end in itself when evaluating a transfer application.” 551 U.S. at 672. As the cases above demonstrate, the statutory factors for decision-making under section 304 (and which also govern FDF variances) are based on technology considerations. Impacts to species would be related to water quality impacts, which Congress did not intend EPA to consider in these analyses. These water quality impacts are considered at the water quality-based effluent limitation stage, not when establishing technology guidelines or FDF variances therefrom.

Relatedly, the BAT (as well as the related pretreatment standard and new source performance standard) technology-based provisions are similarly not a cost-benefit statute, but rather a technology-based statute. See e.g., *EPA v. National Crushed Stone*, 449 U.S. 64, 70-71 (1980). There the Supreme Court was considering whether dischargers could receive variances under section 301(c) from the BPT requirements, and stated that BAT is similar to BPT “except that in assessing BAT total costs is no longer to be considered in comparison to effluent reduction benefits.” In *American Iron and Steel*, 526 F.2d 1027, 1051 (3rd Cir. 1975), the Court held in comparing the assessment for BPT (the first level of control) to BAT, the type of assessment should be basically the same, except that there should be no cost-benefit

designated critical habitat in a manner consistent with the factors the CWA permits it to consider in taking those actions.

¹⁹ There are also procedural requirements in section 301(n) regarding the kind of information that an application for an FDF variance must be based on, as well as a requirement that the variance be no less stringent than the fundamental difference necessitates and that the non-water quality environmental impact of the control used under the variance is not markedly more adverse than the impact found acceptable in the rulemaking. See CWA section 301(n)(1)(B), (C), and (D). These requirements are discussed further, below.

analysis.” And in *Association of Pacific Fisheries v. EPA*, 615 F.2d 794, 818 (9th Cir. 1980), Judge, now Justice, Kennedy held, “The conspicuous absence of the comparative language contained in section 304(b)(1)(B) leads us to the conclusion that Congress did not intend the Agency or this court to engage in marginal costs-benefit comparisons. . . . So long as the required technology reduces the discharge of pollutants, our inquiry will be limited to whether the Agency considered the cost of the technology, along with other statutory factors, and whether its conclusion is reasonable.”

Under the ESA, an Agency is not required to consult where there is no discretion to act to benefit the species at issue. Under *Karuk Tribe of Cal. v. U.S. Forest Service*, 681 F.3d 1006 (9th Cir. 2012), a federal agency has a duty to consult under the ESA section 7 only when (1) the “federal agency affirmatively authorized, funded, or carried out” an activity; and (2) in affirmatively authorizing, funding, or carrying out the activity, the federal agency “has some discretion to influence or change the activity for the benefit of a protected species.” *Karuk Tribe*, 681 F.3d at 1021; see also *Turtle Island Restoration Network v. Nat’l Marine Fisheries Serv.*, 340 F.3d 969, 974-75 (9th Cir. 2003); *Ground Zero Ctr. for Nonviolent Action v. U.S. Dep’t of the Navy*, 383 F.3d 1082, 1092 (9th Cir. 2004) (no duty to consult where Navy lacked discretion to cease missile operations for the protection of listed species). If an agency cannot influence a private activity to benefit a listed species, there is no duty to consult because “consultation would be a meaningless exercise.” *Sierra Club v. Babbitt*, 65 F.3d 1502, 1508-09 (9th Cir. 1995) (no duty to consult for approval of logging roads where, pursuant to a prior right-of-way agreement, BLM retained discretion over only three specified criteria, none of which related to protecting listed species); *Env’tl. Prot. Info. Ctr. v. Simpson Timber Co.*, 255 F.3d 1073, 1081-82 (9th Cir. 2001) (no duty to reinstate consultation for previously issued permits where Fish and Wildlife Service lacked discretion to add protections for newly listed species). The relevant question is whether the agency could influence a private activity to benefit a listed species, not whether it must do so. *Turtle Island*, 340 F.3d at 977. As stated above, even if a particular effluent limitation or standard were thought to be absolutely necessary to protect species, EPA could not promulgate it under the statute if it were not available and economically achievable.

The Supreme Court’s decision in *National Ass’n of Homebuilders v. EPA*, 551 U.S. 665 (2007), is instructive. There, the U.S. Supreme Court held that the no-jeopardy duty under the ESA only applied to discretionary actions and did not apply to the permitting transfer approval which was mandatory under the CWA once the specified triggering criteria were met. Although the duties under the CWA and the ESA were both stated in mandatory terms, 50 C.F.R. § 402.03 appropriately construed the ESA to require the no-jeopardy assessment only if the agency action was discretionary, and there was no basis for an implicit repeal of the permitting transfer approval requirement by imposing the additional requirement of a no-jeopardy duty to obtain such approval. By analogy to these CWA provisions, the ESA provisions do not repeal the CWA provisions requiring EPA to look at the technology-based factors specified in the CWA, and not to look at effects on receiving waters or consider benefits in establishing BAT or pretreatment standards.

Indeed, if EPA were to establish technology-based requirements based upon water quality-related environmental impacts, Congress would not have needed to require, through section 301(b)(1)(C) of the Act, that dischargers meet any more stringent limitations necessary to meet water quality standards on a case-by-case basis. The structure of the Act indicates that Congress viewed the establishment of water quality-based controls as being appropriate on a case-by-case basis, taking into account the particular nature of the discharge and the water quality standards for the receiving waterbody. The commenters' view would turn this approach on its head, effectively mandating the establishment of water quality-based requirements on a national basis, without regard to site-specific considerations viewed by Congress as integral to establishing appropriate water quality-based controls. Such an approach would, therefore, fundamentally transform the structure and operation of the CWA and contradict Congress' attempt in the 1972 Amendments to establish a technology-based floor for point source dischargers, to be supplemented by imposition of water quality-based requirements where necessary. EPA's approach of protecting aquatic life and wildlife (including threatened and endangered species) through the water quality standards and permitting process, by contrast, harmonizes the environmental goals and structures of both the CWA and the ESA.²⁰

The commenter points out that section 301(n) of the Act states that “[t]he Administrator, with the concurrence of the State, *may* establish an alternative requirement . . .” (emphasis added). But that language must be read within the context of the section and related sections and cannot override the technological availability and economic achievability factors found in section 304(b), which are expressly cross-referenced in section 301(n)(1)(A) and used to evaluate FDF variances. Congress intended EPA to establish the requirements of effluent limitations guidelines and standards based on the performance of available and economically achievable technologies without regard to effects on receiving water quality (or those attended effects on species). *American Frozen Food Inst. v. Train*, 539 F.2d 107,121 (D.C. Cir. 1976) (The determination of BPT is not to be based upon the quality of the receiving waters.). *Assn of Pacific Fisheries v. EPA*, 615 F.2d 794 (9th Cir. 1980) (EPA is not supposed to demonstrate the incremental effect on receiving water quality). *Consolidated Coal Co. v. Costle*, 604 F.2d 239, 245 (4th Cir. 1979) (Receiving water quality is not a basis for settling BPT effluent or FDF). *Weyerhaeuser Co. v. Costle*, 599 F.2d 1011, 1028, 1042 (D.C. Cir. 1978) (Impact on receiving water quality not a factor.). This means that if a technology-based effluent limitation or standard were not technologically available or economically achievable, EPA would not have authority to issue it even if it were thought to be necessary to protect listed species. To read section 301(n)'s language stating that the Administrator “may” grant an FDF variance to allow the Administrator to consider water quality and listed species impacts in granting or denying an FDF variance would be inconsistent with the applicable technology factors found in section 304(b), which are expressly cross-referenced in section 301(n) and used to evaluate FDF variances from national guidelines.

²⁰ EPA considers impacts to protected species and designated critical habitat during the section 303(c) water quality standards review process. A 2001 Memorandum of Agreement between EPA and the Services describes EPA's commitment to protecting water quality and endangered and threatened species through consultation on water quality standards approvals and NPDES permitting, where appropriate.

Finally, there is nothing else in section 301(n) of the CWA that gives the Administrator discretion to base an FDF variance decision on impacts to listed species. As mentioned above, the analysis that EPA performs in considering an FDF variance request is whether the facility is fundamentally different with respect to the factors (other than cost) specified in section 304(b) (for direct dischargers) and considered by the Administrator in establishing the otherwise applicable national effluent limitations guidelines. CWA section 301(n)(1)(A). In addition, before granting an FDF variance, the Administrator must be satisfied of three other things. First, that the requestor's application is based solely on information and supporting data submitted to the Administrator during the rulemaking for establishment of the applicable national effluent limitations guidelines (for direct dischargers) specifically raising the factors that are fundamentally different for such facility or the application is based on information and supporting data that the applicant did not have a reasonable opportunity to submit during such rulemaking. CWA section 301(n)(1)(B). Second, that the alternative requirement is no less stringent than justified by the fundamental difference. CWA section 301(n)(1)(C). And, third, that the alternative requirement will not result in a non-water quality environmental impact which is markedly more adverse than the impact considered by the Administrator in establishing such national effluent limitations guidelines. CWA section 301(n)(1)(D). These three additional requirements for FDF variances are narrow, record-based and technical inquiries that do not afford the Administrator discretion to consider potential impacts to listed species, and thus EPA was not required by section 7(a)(2) of the ESA to consult with the Services prior to granting this FDF variance.

Finally, EPA notes that, although it has included a requirement in the final FDF variance decision that the facility shall not violate any additional effluent limitations on mercury or TDS that the State may require in order to meet relevant water quality standards (WQBELs), in doing so, EPA is not exercising any discretion under the statute or regulations to derive a water-quality-based effluent limitation or to establish or adjust the alternative effluent limitations under section 301(n), which is based solely on consideration of the factors contained in section 304(b)(2)(B). Rather, in recognition of 40 C.F.R. § 125.31(b)(2), EPA is referencing and incorporating the separate statutory requirement that the facility meet any water quality-based effluent limitation under section 301(b)(1)(C) of the Act. The State as the permitting authority determines whether water quality-based effluent limitations are appropriate and, if so, establishes such limitations under section 402(b) of the CWA. To the extent any discretion is exercised in ensuring compliance with section 301(b)(1)(C), that discretion is exercised by the State, not EPA.

2. Comments Received from Duke Energy LLC

Duke Energy Indiana, LLC ("Duke Energy") supports the proposed decision by the U.S. Environmental Protection Agency ("EPA") to grant a fundamentally different factors ("FDF") variance to Duke Energy for its Edwardsport IGCC Generating Station ("Edwardsport") with respect to certain effluent limitation guidelines established under 40 CFR 423.130(1) (the "ELGs") for gasification wastewater. In particular, Duke Energy supports the alternative effluent limitations for Best Available Technology Economically Achievable (BAT) proposed by EPA for the discharge of mercury and total dissolved solids ("TDS") from Edwardsport's grey water treatment system in lieu of those set in the ELGs.

While supporting EPA's proposed decision, Duke Energy wishes to submit the following comments on the Tentative Decision document, which describes EPA's proposed decision to grant the FDF variance and explains EPA's reasoning for that decision.

Comment 1

On page 3 of 24, we suggest revising and clarifying the first sentence in Section 2.2 to read as follows:

"The CWA requires application of national effluent limitations or categorical pretreatment standards established pursuant to CWA §301 **or §307, respectively**, to all direct and indirect dischargers **within a particular industrial category or subcategory.**"

EPA Response

EPA agrees with these particular suggested changes and the final decision document reflects them.

Comment 2

In Section 3.2.1, we suggest revising the first sentence of the second bulleted paragraph on page 9 of 24 to insert the omitted word "coal" at the end of the parenthetical phrase "for high sulfur coal", as follows:

"The chlorine content in Edwardsport's fuel (for high sulfur **coal**) of 0.04 percent by dry weight, is twice Polk's fuel content of 0.02 percent by dry weight."

EPA Response

EPA agrees with the particular suggestion in this comment, and the final decision document does include the word "coal" in the sentence identified by the commenter.

Comment 3

On page 13 of 24, we suggest revising the first sentence of the first paragraph in Section 4.1.1 to clarify its meaning, as follows:

"Duke Energy states that the differences in fuel composition for Polk and Edwardsport lead to corresponding differences in pollutant content and volume of **raw** gasification wastewater."

EPA Response

EPA disagrees with the suggestion in this comment because it is not necessary. The word "raw" is not used in the 40 C.F.R. Part 423 regulatory text and does not provide any additional context with respect to gasification wastewater.

Comment 4

On page 16 of 24, we suggest revising and clarifying the title for Table 3, as follows:

"Table 3. Comparison of Mercury Concentration Data for **Edwardsport's** Concentrator and Crystallizer Condensate Streams, ng/L".

EPA Response

EPA agrees with the suggestion in this comment, and the final decision document does include the word "Edwardsport" in the sentence noted by the commenter.

Comment 5

On page 18 of 24, we suggest revising and clarifying the last sentence of the first paragraph in Section 4.2.1, as follows:

"As explained below, this is due to the **expanded** dataset used **by EPA** and to errors in the methodology Duke Energy and its consultant used to calculate requested limits."

EPA Response

EPA disagrees in part and agrees in part with the suggestions in this particular comment. The final decision document does not include the word "expanded" in the sentence identified by the commenter because EPA used a larger dataset for mercury and TDS and a smaller dataset for arsenic so expanded is not accurate. The final decision document does include the additional language "by EPA" in the sentence noted by the commenter.

Comment 6

On page 20 of 24, we suggest correcting Footnote 12 to replace "4 ng/L" with "4 ug/L". We note that this correction was made to the copy of the Tentative Decision document sent to Duke Energy by certified mail, but not to the copy posted on EPA's website.

EPA Response

EPA acknowledges that there was a difference between the published web version of the tentative document and the hard copy that was sent to Duke Energy. The final decision document includes the correct value noted by the commenter in the specified footnote.

Comment 7

On page 20 of 24, we suggest revising the first sentence beneath the heading "Mercury" for clarity, as follows:

"Table 5 provides the long-term average (LTA), variability factors, and EPA's **proposed** alternative effluent limits for mercury for Edwardsport."

EPA Response

EPA disagrees with the suggestion in this comment. The final decision document reflects EPA's final decision on the alternative limits, not a proposed decision. Therefore, the suggested change is not necessary.

Comment 8

Near the bottom of Page 20 of 24, concerning EPA's description of the differences in the datasets used by EPA and Duke Energy in calculating potential alternative effluent limitations, we note that most of the additional data collected by Duke Energy for the period of 4/5/2016 through 10/1/2016 were not available to Duke Energy at the time of its application for the FDF variance, submitted on 4/27/2016.

EPA Response

EPA acknowledges that the data mentioned in this comment was not available to Duke Energy at the time the FDF variance application was submitted as referenced in section 4 of the final decision.

Comment 9

Duke Energy supports the alternative effluent limitations for mercury and TDS proposed by EPA pursuant to the proposed granting of the FDF variance. Based on the dataset evaluated by EPA, the alternative effluent limitations for mercury and TDS are representative of the operations at Edwardsport and the performance of the treatment system.

EPA Response

EPA acknowledges Duke Energy's support for the alternative effluent limitations.

Comment 10

Duke Energy concurs with EPA's observation in Section 4.2.3, on page 22 of 24, that Edwardsport's existing grey water treatment system "is beyond the BAT technology basis for the ELGs" as a result of its inclusion of "two-stage reverse osmosis polishing of the combined condensate". It is posited by Duke Energy that its existing grey water treatment system goes beyond the BAT basis of the ELGs for the further reason that it also includes: (i) scrubbers to remove contaminants from the vapors generated in the MVR concentrator and the CoLD Crystallizer; (ii) a third evaporation stage (the Formate Crystallizer) which receives the scrubber

blowdown streams from the two scrubbers; and (iii) the barometric condenser, which extracts additional condensate from the uncondensed vapors produced by the three evaporator units.

EPA Response

EPA acknowledges Duke Energy's concurrence with EPA's observation in Section 4.2.3 regarding the existing grey water treatment system. EPA is not further addressing the additional technology evaluation expressed by Duke Energy regarding the grey water treatment system as it is not necessary for the final decision.

Comment 11

As a supplement to EPA's discussion of removal costs and non-water quality environmental impacts of the proposed variance in Section 4.2.3 (page 22 of 24), Duke Energy points out that there appears to be a non-water quality environmental benefit deriving from the robust grey water treatment system employed at the Edwardsport facility. The fact that this grey water treatment system is deduced to be more effective at removing mercury from the uncondensed vapor streams produced by the evaporative treatment system, when compared to the gasification wastewater treatment used at Polk Station, implies correspondingly that less mercury is contained in the noncondensable gases emitted from Edwardsport's grey water treatment system as compared to those emitted from a simpler evaporative treatment system such as that employed at Polk Station.

EPA Response

EPA acknowledges that the additional vapor condensation treatment has the potential to reduce non-water quality impacts as discussed in section 4.2.3 of the final decision.

Comment 12

Duke Energy has not conducted a cost estimate for the installation and operation of a zero-valent iron system (ZVI), nor conducted an evaluation of the ability of a ZVI system to achieve the BAT effluent limitations for gasification wastewater as finalized in the ELGs. However, we agree with EPA's conclusion (page 22 of 24) that the capital cost and annual O&M costs projected by EPA for such a supplemental treatment system "are wholly out of proportion to the removal costs considered by EPA during development of the national limits for gasification wastewater."

EPA Response

EPA acknowledges the commenter's support for EPA's conclusion on removal costs.

Comment 13

In conclusion, Duke Energy reiterates its support for EPA's proposed decision to grant an FDF variance for the Edwardsport IGCC Station pursuant to Section 301 (n) of the Clean Water Act, including alternative effluent limitations for mercury and TDS. The proposed decision is consistent with Section 301 (n) and relevant regulations and is soundly based on the facts considered by EPA in reaching its decision. Duke Energy respectfully requests that EPA issue the proposed FDF variance as its final decision, subject to Duke Energy's comments on the

Tentative Decision document as set forth above.

EPA Response

EPA acknowledges the commenter's support for EPA's decision to grant an FDF variance to Duke Energy's Edwardsport IGCC Station.