



ARKANSAS

ENERGY & ENVIRONMENT

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SECRETARY

August 26, 2024

Mr. Richard Wooster
Mail Code R6WDPQ
U.S. Environmental
Protection Agency Region 6
1201 Elm St.
Dallas, TX 75270
Via Email: wooster.richard@epa.gov

RE: FRL-comment on FRL-11994-01-R6

Dear Mr. Wooster:

Attached find Arkansas Department of Energy and Environment and its Division of Environmental Quality's objection to EPA's decision to "partially disapprove" Arkansas' 303(d) list and to overlist seven waterbody/parameter pairs in the Illinois River Watershed.

Sincerely,

Handwritten signature of Shane E. Khoury in black ink.

Shane E. Khoury
Secretary
Department of Energy and Environment

Handwritten signature of Bailey Taylor in black ink.

Bailey Taylor
Chief Administrator, Environment
Division of Environmental Quality, Director

Encl: FRL-comment on FRL-11994-01-R6 with exhibits

RE: FRL-comment on FRL-11994-01-R6

Introduction:

Arkansas Energy and Environment and its Division of Environmental Quality (DEQ) object to EPA's decision to "partially disapprove" Arkansas' 303(d) list. On June 2, 2022, DEQ submitted the State of Arkansas' 2020 Clean Water Act (CWA) Section 303(d) list of impaired waters ("2020 303(d) list") to EPA Region 6. 483 days later, on September 28, 2023, EPA transmitted its partial disapproval of Arkansas' 2020 303(d) list.¹ EPA's partial disapproval purports to add to Arkansas' 2020 303(d) list. Specifically, EPA claims "seven waterbody/parameter pairs are in the Illinois River Watershed and are not attaining the State's narrative nutrient criteria." Record of Decision ("ROD"), p. 7. On June 20, 2024, EPA published this action in the Federal Register initiating a public comment period on its decision. Arkansas Energy and Environment and DEQ provide this comment in response to EPA's action to overlist these "seven waterbody/parameter pairs" in the Illinois River Watershed.

Arkansas Energy and Environment and DEQ's objections to EPA's partial disapproval fall under two categories. First, EPA's decision fails to comply with components of the Clean Water Act that establish the "state-led" cooperative federalism framework. Second, EPA's decision improperly relies on numeric nutrient criteria approved for use in Oklahoma, rather than the narrative nutrient criteria approved for use in Arkansas.

I. EPA's asserted an improper basis for its decision to add waters to the Arkansas 2020 Section 303(d) list.

EPA's decision replaces Arkansas' EPA-approved narrative water quality standard for nutrients with an EPA-selected numeric standard based on a "magnitude concentration" for total phosphorus. EPA provided a Record of Decision that does not sufficiently connect the cited scientific studies and the facts presented (and omitted) to present a basis to support EPA's decision. DEQ communicated many of these concerns to EPA in February 2024 and reiterates and expounds on those concerns in this comment.

A. EPA's description of its process.

EPA asserts that "seven waterbody/parameter pairs are in the Illinois River Watershed and are not attaining the State's narrative nutrient criteria." ROD, p. 7. EPA claims that "EPA's conclusion is based on an independent evaluation of available data and information submitted by the State and other reports." ROD, p. 7. EPA states that its "evaluation focuses on multiple lines of evidence,

¹ Pursuant to 33 U.S.C.A. § 1313(d) and 40 C.F.R. § 130.7(d), EPA has thirty (30) days from submittal to approve, disapprove, or partially disapprove Arkansas' Section 303(d) list of impaired waters. 33 U.S.C.A. § 1313(d); 40 C.F.R. § 130.7(d); *Ctr. For Biological Diversity v. U.S. E.P.A.*, No. C13-1866JLR, 2014 WL 636829, at *1 (W.D. Wash. Feb. 18, 2014).

consistent with the following language in [Arkansas' narrative standard]: 'Because nutrient water column concentrations do not always correlate directly with stream impairments, impairments will be assessed by a combination of factors such as...' ROD, p. 7. Finally, EPA claims that it used "multiple lines of evidence" that include "data about nutrient (total phosphorus) concentrations in the seven assessment units" and "information about periphyton growth and aquatic life community structure." ROD, p. 7.

B. EPA's Analysis.

First, EPA applied a numeric standard of 0.037 mg/L for total phosphorus instead of Arkansas' narrative water quality standard for nutrients because Arkansas' narrative standard was not numeric. ROD, p. 8. Then, EPA calculated the geometric mean for the entire date range of available data at each site and the six-month rolling averages (maxima and minima) of total phosphorus concentrations from 20 monitoring locations for comparison against the magnitude concentration of 0.037 mg/L. ROD, p. 8.² From this, EPA concluded that "[z]ero of the six-month rolling averages were below the 0.037 mg/L magnitude, indicating elevated TP concentrations in each of the seven segments (See Table 1)." ROD, p. 8.³

EPA evaluated periphyton results from the McGoodwin, Williams and Yates (MWY) study titled *Water Quality and Ecological Assessment of Osage and Spring Creeks in the Illinois River Basin* and noted that "[r]esults of that study suggest that nutrients were not limiting periphyton growth at any site (in other words, nutrient concentrations were relatively high)." ROD, p. 8-9. EPA then stated that "[t]he nutrient concentrations measured during the timeframe of the MWY study (2007 – 2009) were of similar magnitude to those measured in the EPA's analysis [of instream data in the seven segments]." ROD, p. 9.

Then, EPA relied on a U.S. Geological Survey (USGS) study of wadeable Ozark Highlands ecoregion streams to link nutrients to aquatic life. ROD, p. 9. According to EPA, the USGS study reports that biotic metric scores (i.e., Index of Biotic Integrity) were inversely related to nutrients (e.g., total phosphorus). ROD, p. 9. EPA states that biotic metric scores in that study were generally lowest when total phosphorus concentrations were higher than 0.018 mg/L. ROD, p. 9. EPA's analysis is that the six-month rolling averages for total phosphorus captured in EPA's analysis for the Illinois River, Spring Creek, and Osage Creek was higher than the 0.018 mg/L value mentioned in the USGS study. ROD, p. 9.

² EPA states that it reviewed data from 2009 to 2018. Significantly, EPA did not provide this data as an attachment to its Record of Decision or provide a link to that data or its source. DEQ's period of record for this 303(d) list was April 1, 2014 – March 31, 2019. EPA provides no explanation or justification for its decision to ignore the period of record that DEQ used.

³ Again, significantly, EPA did not provide the data or the source for the data used to generate this Table 1 in EPA's Record of Decision. DEQ cannot independently verify EPA's claims about the results of EPA's analysis.

From this, EPA concludes that “the conditions in seven segments listed above are consistent with excess nutrients.” ROD, p. 9. On the basis of this conclusion that there are excess nutrients in the area, “EPA has determined that the narrative criterion for nutrients is not being met.” ROD, p. 9.

II. DEQ’s technical analysis found EPA’s Record of Decision lacking.

DEQ conducted a technical analysis of EPA’s Record of Decision and has determined that EPA did not correctly apply Arkansas’ narrative water quality standard.

First, Arkansas’ narrative water quality standard for nutrients is promulgated as Arkansas Pollution Control and Ecology Commission’s (APC&EC) Rule 2.509, and states, “[m]aterials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody.”⁴ EPA’s Record of Decision does not assert that nutrients in these seven segments are present in “concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody.” EPA simply states that the conditions are “consistent with excess nutrients.” As explained above, Arkansas’ narrative water quality standard for nutrients explicitly states that the presence of excess nutrients alone is not sufficient to demonstrate that an impairment exists.

Second, under Arkansas’ narrative water quality standard for nutrients, “impairments will be assessed by a combination of factors.”⁵ EPA did not analyze a combination of factors. EPA simply compares a data set of in-stream nutrient concentrations for total phosphorus to (1) a magnitude concentration of 0.037 mg/L, (2) the in-stream concentration data in the MWY study, and (3) the total phosphorus concentration of 0.018 mg/L in the USGS study.

EPA has failed to correctly apply Arkansas’ narrative water quality standard for nutrients by failing to assess these streams based on a combination of factors.

Below, DEQ provides its technical analysis of the science EPA purports to rely on to support its decision.

A. The McGoodwin, Williams, and Yates Study (MWY) found no violation of Arkansas’ narrative standard.

EPA relied in part on the MWY study for its decision to “partially disapprove” DEQ’s 303(d) list. DEQ’s technical analysis shows that the MWY study does not support EPA’s position.

⁴ Arkansas Pollution Control and Ecology Commission’s (APC&EC) Rule 2.509.

⁵ Arkansas Pollution Control and Ecology Commission’s (APC&EC) Rule 2.509.

EPA's analysis compared the MWY study's in-stream nutrient concentration data to nutrient concentration data from 20 monitoring locations.⁶ EPA assumes that the in-stream nutrient concentrations must be high because the MWY study found that nutrients, i.e. nitrogen or phosphorus, were not limiting growth. EPA then concludes that the streams must be impaired and Arkansas' narrative criterion for nutrients is not being met.

The MWY study evaluated response of periphyton to nutrient enrichment. The MWY study found no statistically significant results suggesting nutrient limitation based on the data from the passive diffusion periphytometers. The MWY study pointed out that something other than nutrients such as light, temperature, or turbidity is limiting periphyton growth.⁷ In addition to this periphyton data, the MWY study also evaluated water quality data and data for macroinvertebrates and fish to reach its conclusion.

The conclusion of the MWY study does not support EPA's position. The MWY study states:

The conclusion is that there is *no evidence* that discharge of wastewater from the Rogers WWTP to Osage Creek or the Springdale WWTP to Spring Creek results in any violation of water quality standards according to the criteria of ADEQ Reg. 2. There appears to be *no justification* from this data for placing Spring and Osage Creeks on the 303(d) list of impaired waters for impairment by nutrients.⁸

The MWY study was clear that the data provided *no justification* for placing Spring and Osage Creeks on the 303(d) list of impaired waters for impairment by nutrients.

EPA cites the MWY study in support of EPA's decision but notably excluded that study's conclusion from EPA's Record of Decision. EPA provided no criticism of that study. And EPA provides no explanation as to how its decision to place Spring and Osage Creeks on the 303(d) list is supported by a study that concluded the opposite.

⁶ EPA states that it reviewed data from 2009 to 2018. As noted above, EPA did not provide this data as an attachment to its Record of Decision or provide a link to that data or its source. DEQ cannot independently verify EPA's data comparison.

⁷ Exhibit A, *Water Quality and Ecological Assessment of Osage and Spring creeks in the Illinois River Basin*. McGoodwin, Williams and Yates, p. 97-98.

⁸ Exhibit A, p. 102 (emphasis added).

B. The measured total phosphorus concentrations from the MWY study did not correlate to nuisance levels of algae.

EPA concludes that conditions in the relevant stream segments are “consistent with excess nutrients.”⁹ However, EPA never provides any actual data that links nutrient concentrations with nuisance levels of algae in these stream segments.

Although EPA relies on the MWY study for this proposition, the MWY study does not support EPA’s position. EPA claims that that in-stream nutrient concentrations are relatively high because the MWY study results suggested that some factor other than nutrients is limiting periphyton growth in the system. Then EPA stated that nutrient concentrations from the MWY study are similar in magnitude to the 2009 to 2018 data that EPA used for its Record of Decision. However, EPA failed to identify any periphyton results from the MWY study that showed nuisance levels of algae. For EPA’s chain of reasoning to be scientifically valid, the MWY study should have reported benthic chlorophyll *a* values corresponding to nuisance levels of algae and concluded that those levels of algae caused an impairment. The MWY study found the opposite.

The Osage Creek¹⁰ data from the MWY study does not demonstrate a direct correlation between the observed benthic chlorophyll *a* values and nuisance levels of algae—a correlation that EPA’s decision presupposes. The MWY study reported mean benthic chlorophyll *a* for all Osage Creek sites during three critical seasons:¹¹

Season	Mean benthic chlorophyll <i>a</i>	Notes
first critical season	never above 55 mg/m ²	
second critical season	never above 128 mg/m ²	four of five sites were below 100 mg/m ²
third critical season	never above 180 mg/m ²	four of the five sites were below 150 mg/m ²

For context, Dr. Ryan King identified values above 150–200 mg/m² as the literature values that could represent nuisance conditions.¹² However, Dr. King explained that these values [greater than 150–200 mg/m²] are subjective and need context.¹³ Dr. King stated that “some of our sites with low phosphorus consistently yielded benthic chlorophyll *a* levels that approached or exceeded literature values for ‘nuisance’ conditions (>150–200 mg/m²), yet virtually none of this algal

⁹ As explained above, Arkansas’ narrative water quality standard for nutrients explicitly states that the presence of excess nutrients alone is not sufficient to demonstrate that an impairment exists.

¹⁰ In the MWY study, Osage Creek sites 1, 2, and 3 correspond to AU AR_11110103_930, and Osage Creek sites 4 and 5 corresponding to AU AR_11110103_030.

¹¹ Exhibit A, Appendix F.

¹² Exhibit B, King, RS. 2016. Oklahoma-Arkansas Scenic Rivers Joint Phosphorus Study: Final Report, p. 45.

¹³ Exhibit B, p. 45.

biomass was *Cladophora* or other nuisance species of filamentous green algae.”¹⁴ Dr. King stated that “150–200 mg/m² likely represented the lower end of potential nuisance levels of algal biomass in the Designated Scenic Rivers during a wet year, whereas levels above 300 mg/m² should be considered nuisance levels under *most* conditions.”¹⁵

Significantly, EPA does not reference these data points for mean benthic chlorophyll *a* values from the MWY study in its Record of Decision. In fact, EPA doesn’t provide any of the chlorophyll *a* data for Osage Creek from the MWY study.¹⁶ EPA does not identify a range of benthic chlorophyll *a* values that could represent nuisance conditions. Only one data point from the MWY study’s data was within the literature values that might represent nuisance conditions, i.e. values above 150 to 200 mg/m². None of the Osage Creek sites sampled during the MWY study ever approached the 300 mg/m² nuisance condition that Dr. King described.

The data from the MWY study does not support EPA’s claim that total phosphorus concentrations indicate that the segment is impaired by nuisance levels of algae present in the streams. Rather, the MWY study concluded the opposite—relatively higher nutrient concentrations did not correlate to nuisance levels of algae present in the streams. The single location in Osage Creek that exceeded 150 mg/m² during the third critical season of this study does not, and cannot, demonstrate that the nutrient concentrations measured during the study caused algal growth in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody.

The MWY study supports the statement in Arkansas’ narrative water quality standard for nutrients that “*nutrient water column concentrations do not always correlate directly with stream impairments.*”¹⁷ The observed benthic chlorophyll *a* values from the MWY study did not correlate to nuisance conditions that violated Arkansas’ narrative standard.

EPA is required to offer a satisfactory explanation of a rational connection between the MWY study and its decision to “partially disapprove” DEQ’s 303(d) list.¹⁸ EPA failed to comply with this requirement. EPA did not accurately represent the findings and conclusion of the MWY study.

¹⁴ Exhibit B, p. 45.

¹⁵ Exhibit B, p. 45 (emphasis added).

¹⁶ EPA’s failure to include this data is telling because Chlorophyll *a* is a response parameter specifically identified in EPA memorandum: Information Concerning 2024 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions, March 29, 2023, p. 16.

¹⁷ APC&EC Rule 2.509 (emphasis added).

¹⁸ “In reviewing an agency’s action under that standard, a court may not substitute its judgment for that of the agency. But it must ensure, among other things, that the agency has offered a satisfactory explanation for its action[,] including a rational connection between the facts found and the choice made. Accordingly, an agency cannot simply ignore an important aspect of the problem.” *Ohio v. Env’t Prot. Agency*, 144 S. Ct. 2040, 2053 (2024) (internal citations and quotation marks omitted).

EPA does not provide the analysis of the periphyton growth EPA claims it performed. EPA does not even discuss the chlorophyll *a* data for Osage Creek from the MWY study. EPA does not explain its reasons and scientific basis for any of these choices in its Record of Decision.

C. EPA failed to link aquatic life community structure to nutrients.

In its section titled “linking aquatic life community structure to nutrients,” EPA claims that the USGS paper establishes a link between the quality of the aquatic life community and the 0.018 mg/L total phosphorus concentration. The USGS paper does not prove that link.

EPA attempts to make a link between quality of the aquatic life community and the total phosphorus concentration by relying on the USGS paper’s statement that “[b]iotic metric scores were inversely related to nutrients and were generally highest when...TP concentrations were less than...about 0.018 mg/L.”¹⁹ However, the USGS paper acknowledges that the 0.018 mg/L total phosphorus concentration was not derived by developing thresholds for nutrient enrichment. EPA left out the first sentence of that paragraph from the USGS paper that states, “the small size of the data set limits our ability to identify thresholds for TN and TP...”²⁰ In other words, the data from the USGS paper is not sufficient to develop concentration thresholds for nutrient enrichment.

The USGS paper follows its caveat with the statement that “*some* literature indicates that TN and TP concentrations near median values for this study are near threshold concentrations that distinguish between reference streams and streams that are slightly enriched (i.e. near background, Table 3).”²¹ According to Table 3 from the USGS paper, the 0.018 mg/L total phosphorus concentration is the concentration equivalent to a nutrient index score of 0.75. Tables S5, S6, and S7 describe sites with a nutrient index score of 0.75 as sites that are “suspected of being moderately enriched.”²²

The USGS paper does not present data to show that a finding that a stream is “suspected of being moderately enriched” is equivalent to a violation of Arkansas’ narrative nutrient standard, i.e. that the stream has concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody. The USGS paper states that “[r]elations between chlorophyll *a* and TN and TP were poor for [the USGS paper’s] data.”²³ Additionally, the streams in the USGS paper are not similar to the streams EPA claims are

¹⁹ Exhibit C, Justus, B.G. et al. 2010. A comparison of algal, macroinvertebrate, and fish assemblage indices for assessing low-level nutrient enrichment in wadeable Ozark streams. *Ecological Indicators*, May 2010, 627-638.

²⁰ Exhibit C.

²¹ Exhibit C (*emphasis added*).

²² Exhibit C.

²³ Exhibit C.

impaired. The sampling sites in the USGS paper had land use that was usually less than 5% urban—not the urban streams at issue in EPA’s current action.

It is unclear why EPA cited to this USGS paper to “[link] aquatic life community structure to nutrients,” or why EPA referenced the 0.018 mg/L total phosphorus concentration that only provides a *suspicion* that a stream is moderately enriched. In contrast, the MWY study from the same timeframe analyzed data and concluded that the Osage Creek sites were not impaired. Additionally, DEQ collected pH, dissolved oxygen, and fish community data for Spring Creek in 2023, and provided that data to EPA in February 2024. DEQ’s data from Spring Creek demonstrated that 43% of fish sampled were sensitive species and none of the criteria to protect the aquatic life use were in fact impaired. The USGS paper is not relevant to Arkansas’ narrative nutrient standard, does not speak to nuisance algae levels, had no reported amount of benthic algae per unit area (even though it was collected), and acknowledged that its data did not establish a relationship between chlorophyll *a* and nutrient concentrations.

D. DEQ’s assessment of Spring Creek refutes EPA’s assumptions about nutrient concentrations.

Arkansas Pollution Control and Ecology Commission’s (APC&EC) Rule 2 does not include a numeric nutrient criteria that establishes a threshold concentration for total phosphorus. Rather, APC&EC Rule 2.509 states that “materials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody.”

DEQ has a process for assessing waterbodies for compliance with Arkansas’ narrative nutrient standard.²⁴ DEQ’s assessment methodology is dictated by APC&EC Rule 2.509, and states “because nutrient water column concentrations do not always correlate directly with stream impairments, impairments will be assessed by a combination of factors such as water clarity, periphyton or phytoplankton production, dissolved oxygen (D.O.) values, D.O. saturation, diurnal D.O. fluctuations, pH values, aquatic-life community structure and possibly others.” DEQ’s process has been reviewed by EPA as part of Arkansas’ 305(b) report. However, EPA’s Record of Decision does not include any evaluation of evidence relating to periphyton biomass, diurnal D.O. fluctuations, pH values, or aquatic life community structure.

In the summer of 2023, DEQ sampled streams in the Illinois River basin as part of DEQ’s ecoregion project for the Ozark Highlands and collected sufficient data to assess Spring Creek for

²⁴ DEQ’s process for assessing waters is detailed in its assessment methodology and is published on DEQ’s website.

APC&EC Rule 2’s narrative nutrient criterion. DEQ assembled water quality data for comparison with a period of record going back five years from September 2023.²⁵

DEQ assessed the collected data according to DEQ’s assessment methodology.²⁶ The process is reflected in the table below.

Table 1 Assessment process for nutrients in Spring Creek

Nutrient Assessment	Spring Creek	Decision
Are mean TP and/or TN concentrations > 75% for the ecoregion?	Yes	Move to next step
Do continuous datasets for D.O. or pH exceed criteria?	No	Support
Are biological assemblages impaired?	No (fish only)	Support

The mean total phosphorus concentration was greater than the 75th percentile for the ecoregion, so the next step in the flow chart is required (see Table 1 above).

DEQ reviewed the 48-hour D.O. and pH datasets and found no exceedances of the applicable criteria. Based on DEQ’s assessment methodology that result indicated that the stream is supporting the narrative nutrient standard for the stream.

Although not required by the assessment methodology, due to D.O. and pH having attained the water quality standard, DEQ further assessed Spring Creek using the data for biological assemblages that DEQ collected in 2023. Based on DEQ’s assessment methodology, the fish assemblage further demonstrated that Spring Creek was supporting the aquatic life designated use. DEQ’s biological sampling found that ten (10) of the twenty-three (23) species captured were sensitive species.

DEQ’s use of its own EPA-approved narrative criterion and assessment methodology is the appropriate pairing of criterion and methodology for assessing waters in the state of Arkansas under the Clean Water Act. DEQ used multiple lines of evidence from empirical data collected on Spring Creek. DEQ evaluated total phosphorus concentrations, 48-hour D.O. and pH datasets, as

²⁵ Exhibit D, Email to EPA on February 21, 2024, providing DEQ’s assessment of Springs Creek, associated data, and narrative explanation.

²⁶ DEQ’s assessment methodology uses numeric targets for specific nutrients (i.e. the mean total phosphorus concentration was greater than the 75th percentile for the ecoregion) and specific targets for response parameters (i.e. comparing continuous datasets for D.O. or pH to the applicable criteria) and also includes assessing biological assemblages from the stream to confirm. This methodology is consistent with EPA memorandum: Information Concerning 2024 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions, March 29, 2023, p. 16.

well as the fish assemblage using DEQ's assessment methodology. DEQ determined that there was no impairment of DEQ's EPA-approved narrative nutrient standard for Spring Creek.

Further, Spring Creek has the highest geometric mean total phosphorus of all the assessment units that EPA identifies in its partial disapproval. The fish assemblage data demonstrates that Spring Creek is in fact supporting the aquatic life designated use, including a high percentage of sensitive species. The 48-hour D.O. and pH datasets also demonstrates that Spring Creek is supporting the aquatic life designated use. The earlier MWY study also concluded that the observed conditions did not violate Arkansas' narrative standard.

DEQ's data and the MWY study conclusively demonstrate that mean total phosphorus concentrations alone are not sufficient to determine that an impairment of aquatic life exists.

E. EPA's Record of Decision fails to provide an adequate scientific analysis.

EPA fails to produce evidence that objectionable algal densities or other nuisance aquatic vegetation have impaired any designated use of these seven segments. EPA provides no evidence regarding water clarity, periphyton production, diurnal D.O. fluctuations, pH values, or aquatic life community structure—all factors mentioned in Arkansas' EPA-approved narrative standard.

In contrast, DEQ's assessment of Spring Creek using Arkansas' approved assessment methodology clearly demonstrates that there was no violation of Arkansas' narrative nutrient standard and that no designated uses were impaired. Further, the MWY study concluded that there appears to be no justification from that study's data for placing Spring and Osage Creeks on the 303(d) list of impaired waters for impairment by nutrients. Without explanation, EPA relies on that independent study to reach the opposite conclusion.

EPA's entire basis for its action is EPA's unsupported claim that a stream segment with total phosphorus concentrations that exceed EPA's inapplicable numeric concentration of 0.037 mg/L total phosphorus is not meeting Arkansas' narrative standard. EPA's conclusion that these streams are not meeting Arkansas' narrative standard is based on EPA's determination that "the conditions in seven segments listed above are consistent with excess nutrients."²⁷

EPA has presented no corroborating data to support EPA's assertion that a stream segment with total phosphorus concentrations that exceed the numeric concentration of 0.037 mg/L total phosphorus will have objectionable algal densities or other nuisance aquatic vegetation that will impair a designated use of that stream segment.

²⁷ ROD, p. 9.

In contrast to EPA's analysis, DEQ, applying its published, valid and approved assessment methodology, conclusively demonstrates that EPA's claim is false by showing that a stream segment in the Illinois River basin is not impaired despite the total phosphorus concentrations exceeding the numeric concentration of 0.037 mg/L total phosphorus in that stream.

III. EPA's review of Arkansas' 303(d) list did not comply with the Clean Water Act.

EPA's disapproval of Arkansas' 303(d) list fails to follow the Clean Water Act because EPA did not base its decision to add segments to Arkansas' Section 303(d) list on Arkansas' water quality standard. EPA's decision to replace Arkansas' narrative standard with Oklahoma's numeric standard for Oklahoma Scenic Rivers violates specific provisions of the Clean Water Act²⁸ as well as the fundamental structure of cooperative federalism, which is the cornerstone of the Clean Water Act.

Additionally, EPA's action avoids procedural requirements in the Clean Water Act that provides interested parties the opportunity for meaningful involvement. None of the interested parties, including the State of Arkansas, had notice that EPA would purport to review Arkansas' 303(d) list by using Oklahoma's numeric aesthetic standard for Oklahoma Scenic Rivers. Without notice, none of those interested parties had the opportunity for meaningful involvement guaranteed by the Clean Water Act.

A. EPA's action violates the state-led cooperative federalism framework in the Clean Water Act.

The Clean Water Act establishes a system of cooperative federalism, and EPA's decision here does not comply with it. Under the state-led cooperative federalism framework in the Clean Water Act, Arkansas has primary responsibility for determining both Arkansas' water quality standards and if a waterbody is not meeting Arkansas' water quality standards. EPA's role in reviewing Arkansas' 303(d) list is limited to its 30-day review period pursuant to 33 U.S.C.A. § 1313(d). Here, EPA waited 483 days to issue its partial disapproval of DEQ's 303(d) list.

DEQ's concerns about EPA's delayed action in this instance stems from EPA's history of actions that did not preserve that state-led framework. EPA has failed to act within its 30-day review period on six previous occasions. Prior to EPA's approval of Arkansas' 2018 303(d) list, EPA did not act on four of Arkansas' 303(d) lists until July 19, 2017:²⁹

- 2010: submitted 2666 days before EPA took action.

²⁸ 33 U.S.C. § 1313.

²⁹ EPA's July 19, 2017, action letter can be accessed at the following link:
<https://www.adeq.state.ar.us/water/planning/integrated/303d/pdfs/2017/epa-decision-7192017.pdf>

- 2012: submitted 1937 days before EPA took action.
- 2014: submitted 1205 days before EPA took action.
- 2016: submitted 474 days before EPA took action.

In contrast, EPA approved Arkansas' 2018 303(d) list on May 15, 2020, seventy-eight (78) days after DEQ submitted it.³⁰ While still not within the statutorily mandated timeframe, EPA more nearly preserved the spirit of the state-led framework mandated in the Clean Water Act.

When DEQ submitted its 2020 list on June 2, 2022, just over two years after EPA approved the previous list, DEQ did so with the expectation that EPA would again preserve that state-led framework through reasonably timely action. Timely action would allow DEQ to get on track with its submissions. While DEQ currently has Arkansas' 2022 303(d) list ready, EPA's unexpected partial disapproval of the 2020 list goes beyond the review authorized under the Clean Water Act. DEQ can no longer be certain what water quality standards EPA will decide to apply to Arkansas' waters when reviewing Arkansas' upcoming 2022 303(d) list. EPA's delayed action and partial disapproval of the 2020 list prevents Arkansas from exercising its primary responsibility for establishing Arkansas' water quality standards and determining when a waterbody is not meeting those standards.

B. EPA's decision to add waters to the Arkansas 2020 Section 303(d) list is not based on Arkansas' narrative standard.

EPA's Record of Decision violated 33 U.S.C. § 1313(d) and 40 C.F.R. § 130.7 because EPA did not use Arkansas' water quality standard when developing the basis for its decision to add segments to Arkansas' Section 303(d) list. EPA's Record of Decision states that EPA applied "a threshold magnitude concentration of 0.037 mg/L" because Arkansas' "narrative nutrient criteria do not specify concentrations that would impair designated uses."³¹ EPA has not previously communicated to Arkansas, through any rulemaking or otherwise, that Oklahoma's numeric aesthetic criteria is the applicable water quality standard in Arkansas.³² EPA's decision to replace Arkansas' narrative water quality standard for nutrients with a numeric standard disregards the Clean Water Act's framework giving states primary responsibility for determining their water quality standards.

³⁰ EPA's May 15, 2020, action letter can be accessed at the following link:

<https://www.adeg.state.ar.us/water/planning/integrated/303d/pdfs/2018/ar-epa-action-letter-20200515.pdf>

³¹ ROD, p. 8.

³² In settlement discussions related to DEQ's two pending federal lawsuits against EPA, EPA has not taken the position that Oklahoma's numeric aesthetic criteria is the applicable water quality standard in Arkansas, i.e. the standard that is effective for Clean Water Act purposes in Arkansas.

Congress gave states the primary responsibility to set water quality standards.³³ Those state standards are used to identify the waters to be included on the states' Section 303(d) lists.³⁴ The thirty-day limit on EPA's review of a state's 303(d) list indicates that Congress intended the EPA to have a very limited role.³⁵ EPA's limited role is evidenced by the wording of the regulations, the decisions of the courts, and the interpretation of the requirements by the EPA.³⁶ EPA's decision to overlist seven Arkansas waterbody/parameter pairs using Oklahoma's numeric water quality standard is not an appropriate exercise of EPA's limited role of oversight.

In accordance with 33 U.S.C. § 1313(d) and 40 C.F.R. § 130.7, the applicable water quality standard for nutrients is Arkansas' EPA-approved narrative standard. Arkansas' narrative standard, promulgated as APC&EC Rule 2.509, states that “materials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody.” Arkansas' narrative standard does not include a numeric nutrient criteria that establishes a threshold concentration for total phosphorus. Arkansas' narrative standard rejects using threshold nutrient concentrations alone to determine an impairment.³⁷ Arkansas' narrative standard states, “*Because nutrient water column concentrations do not always correlate directly with stream impairments*, impairments will be assessed by a combination of factors[.]”³⁸ Likewise, Arkansas' assessment methodology relies on a combination of factors and does not establish a threshold magnitude concentration for total phosphorus. EPA applied “a threshold magnitude concentration of 0.037 mg/L” to make its determination. Arkansas would have to change Arkansas' water quality standard for nutrients before Arkansas itself could determine that these seven segments as impaired by applying “a threshold magnitude concentration of 0.037 mg/L.”

On February 21, 2024, DEQ provided additional scientific data and analysis to EPA that demonstrated that Spring Creek was meeting Arkansas' narrative nutrient standard using DEQ's assessment methodology.³⁹ Arkansas' assessment methodology is consistent with Arkansas' narrative standard as well as EPA's memorandum titled “Information Concerning 2024 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions.” According to EPA, states have flexibility in how numeric targets for nutrient-related parameters

³³ While the states and EPA share duties in achieving this goal, primary responsibility for establishing appropriate water quality standards is left to the states. *Nat. Res. Def. Council, Inc. v. U.S. E.P.A.*, 16 F.3d 1395, 1399 (4th Cir. 1993).

³⁴ 40 C.F.R. § 130.7.

³⁵ See *City of Albuquerque v. Browner*, 97 F.3d 415, 424-425 (10th Cir.1996).

³⁶ *Barnum Timber Co. v. U.S. E.P.A.*, 835 F. Supp. 2d 773, 781 (N.D. Cal. 2011).

³⁷ EPA disapproved proposed language in Arkansas' water quality standard that would have allowed Arkansas to determine a segment was impaired based on either a site-specific numeric standard or Arkansas' assessment methodology.

³⁸ APC&EC Rule 2.509 (*emphasis added*).

³⁹ Exhibit D.

are incorporated into a state's assessment methodology and can apply numeric targets for specific response parameters, such as dissolved oxygen, independently or in combination.⁴⁰ Thus, EPA's use of "a threshold magnitude concentration of 0.037 mg/L" is explicitly contrary to Arkansas' narrative standard for nutrients that EPA approved, and DEQ has provided scientific data and analysis that streams with higher concentrations of nutrients are meeting Arkansas' narrative nutrient standard. In addition, Arkansas' assessment methodology uses numeric targets for response parameters, specifically dissolved oxygen and pH, consistent with EPA's memorandum.

The data DEQ presented to EPA sufficiently demonstrates that EPA's action is not based on Arkansas' standards; that Arkansas' designated uses are being met; and that EPA exceeded its oversight role under the Clean Water Act by using a standard that is not applicable to waters in Arkansas or the designated uses of those waters.

C. The Clean Water Act requires EPA to review Arkansas' 303(d) list based on the applicable water quality standard.

EPA violated the Clean Water Act by replacing Arkansas' narrative standard for the seven segments in the Illinois River watershed with an EPA-selected numeric standard. Pursuant to 33 U.S.C. § 1313(d) and 40 C.F.R. § 130.7, Arkansas' 303(d) list must be based on the water quality standard applicable to such waters. "Water quality standards are provisions of State or Federal law which consist of a designated use or uses for the waters of the United States and water quality criteria for such waters based upon such uses."⁴¹ "Designated uses are those uses specified in water quality standards for each water body or segment whether or not they are being attained."⁴² The applicable water quality standards are those standards that are established pursuant to Section 303 of the Clean Water Act for that waterbody and specifically include narrative criteria.⁴³

In this instance, Arkansas' narrative standard *is* the applicable water quality standard established pursuant to Section 303 of the Clean Water Act that protects the designated uses for the seven segments in the Illinois River watershed. EPA's arbitrarily selected "threshold magnitude concentration of 0.037 mg/L" is not consistent with Arkansas' narrative nutrient standard, and therefore cannot be the standard established pursuant to Section 303 of the Clean Water Act for these seven segments. The designated uses for those seven segments in Arkansas do not include meeting the aesthetic standard for Oklahoma Scenic Rivers.

⁴⁰ "There is flexibility in how numeric targets for nutrient-related parameters can be incorporated into scientifically sound assessment approaches consistent with narrative criteria. For example, numeric targets may be appropriate for specific nutrients and/or response parameters (e.g., dissolved oxygen, chlorophyll a) and may be applied independently or in combination." EPA memorandum: Information Concerning 2024 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions, March 29, 2023, p. 16.

⁴¹ 40 C.F.R. § 131.3.

⁴² 40 C.F.R. § 131.3.

⁴³ 40 C.F.R. § 130.7.

EPA fails to produce any legal authority for replacing a state’s applicable water quality standard that has been promulgated and approved as described in 40 C.F.R. § 130.7 with a different water quality standard. As explained above, EPA’s use of nutrient concentrations alone to determine whether an impairment exists directly conflicts with Arkansas’ approved narrative standard. EPA cites no authority for its decision to apply a numeric standard because Arkansas’ approved narrative standard does “not specify concentrations that would impair designated uses.”⁴⁴ Narrative standards, which are by definition not numeric standards, cannot be replaced as a matter of convenience for EPA to conduct its 303(d) list review.

D. The Clean Water Act requires EPA take specific actions before EPA can act to replace Arkansas’ narrative standard.

The Clean Water Act does not allow EPA to replace any state’s water quality criterion unless and until EPA follows the process outlined in the Clean Water Act.⁴⁵ EPA’s regulations also require EPA to follow the policies, procedures, analyses, and public participation requirements established for states when EPA decides to override a state’s approved water quality standard.⁴⁶ EPA has taken none of the required procedural steps.

EPA has not taken the first required action to determine that a revised water quality standard for nutrients is necessary—an action that would reverse EPA’s previous approval of Arkansas’ narrative standard. Between DEQ’s submission of its 2020 303(d) list and EPA’s partial disapproval on September 28, 2023, EPA approved DEQ’s most recent revision to Arkansas’ water quality standards in APC&EC Rule 2 that includes Arkansas’ narrative standard for nutrients.⁴⁷ At that time, EPA reminded Arkansas that EPA did not approve the sentence in Arkansas’ narrative that would have allowed Arkansas to determine a nutrient impairment based on “any Arkansas established numeric water quality standard.”⁴⁸

⁴⁴ ROD, p. 8.

⁴⁵ See 33 U.S.C. § 1313(c)(4) (stating the conditions under which the EPA must act to promulgate water quality standards); and *Fla. Wildlife Fed’n, Inc. v. Jackson*, 853 F. Supp. 2d 1138, 1156 (N.D. Fla. 2012) (“The Clean Water Act gives a state the primary role in setting its water-quality standards. But the Act gives the Administrator a role as well. The state must submit its standards to the Administrator for approval. And the Administrator’s approval of a state standard does not end the Administrator’s involvement. Under § 303(c)(4) of the Act, the Administrator must ‘promptly’ propose and adopt ‘a revised or new’ standard ‘in any case where the Administrator determines that a revised or new standard is necessary to meet the requirements of’ the Act. 33 U.S.C. § 1313(c)(4).”).

⁴⁶ 40 C.F.R. §§ 131.21 and 131.22.

⁴⁷ DEQ submitted its 303(d) list on June 2, 2022, and EPA approved the most recent revisions to Arkansas’ water quality standards in APC&EC Rule 2: Rule Establishing Water Quality Standards for Surface Waters of the State of Arkansas on November 9, 2022.

⁴⁸ EAP’s November 9, 2022 approval of APC&EC Rule 2 can be accessed at the following link: <https://www.adeq.state.ar.us/water/planning/reg2/pdfs/record-of-decision/2022-epa-triennial-review-letter-and-record-of-decision.pdf>

EPA's current action in issuing its partial denial in effect substitutes Arkansas' existing and approved narrative standard with an EPA-selected numeric standard by making that numeric standard the applicable standard that is effective for Clean Water Act purposes. The Clean Water Act requires that each state develop its 303(d) list using the state's *applicable* water quality standards.⁴⁹ EPA's review of a state's 303(d) list is likewise limited by the Clean Water Act and must be based on the state's applicable water quality standards.⁵⁰

In this case, EPA cannot demonstrate an impairment without relying on a numeric standard that is not effective in Arkansas for Clean Water Act purposes. EPA's purported action in effect makes that numeric standard applicable for Clean Water Act purposes. EPA's action, if allowed to stand, essentially changes Arkansas' standard without following the Clean Water Act procedural requirements that EPA must complete to change a state's water quality standard.

E. EPA's partial disapproval attempts to impose a unilateral change to Arkansas' valid and approved water quality standard without providing a meaningful opportunity for public involvement.

EPA's review of Arkansas' impaired waters list applies a standard that is fundamentally different from the state's approved standard, i.e. numeric verses narrative, without any prior notice to the state or the public. Without notice and without providing a meaningful opportunity for public participation, EPA applies a numeric water quality criterion for Oklahoma Scenic Rivers while disregarding Arkansas' promulgated and approved narrative standard.

Both the Clean Water Act and Arkansas law require that changes to water quality standards include an opportunity for the public to comment on the revisions prior to those changes becoming effective. EPA's notice of its disapproval of Arkansas' 303(d) list presupposes that EPA's determination to use Oklahoma's numeric standard is effective for Clean Water Act purposes in Arkansas. EPA's after-the-fact notice is contrary to the requirements of the Clean Water Act.

EPA's partial disapproval rests on the EPA's presumption that its selection of Oklahoma's numeric standard is already effective for purposes of EPA's oversight of Arkansas' 303(d) list. If allowed to stand, EPA's action would fundamentally alter the Clean Water Act. EPA's review of a state's 303(d) list would essentially become the new vehicle for establishing the water quality standards that are effective for Clean Water Act purposes. The public participation requirements for EPA's review of a state's 303(d) list are less stringent than what EPA must do to change a state's water

⁴⁹ 33 U.S.C. § 1313(emphasis added).

⁵⁰ 33 U.S.C. § 1313(d) and 40 C.F.R. § 130.7

quality standard.⁵¹ The Clean Water Act does not allow EPA to implement a new or revised water quality standard for a state as part of its review of the 303(d) list. The Clean Water Act requires an opportunity for comment on a new or revised water quality standard before it can be effective for Clean Water Act purposes.

F. EPA’s Record of Decision does not support EPA’s assertion that Arkansas did not use certain water quality information or address public input.

In EPA’s June 20, 2024, Federal Register publication of its decision, EPA claims that “Arkansas did not use certain water quality information and therefore did not identify certain water quality limited segments based upon existing data and public input.” As noted above, EPA states that it analyzed nutrient concentration data from twenty monitoring locations. EPA failed to provide the 2009 to 2018 nutrient concentration data, failed to provide a link to that data, and failed to provide the source of that data. Again, as explained above, EPA used that 2009 to 2018 nutrient concentration data in a manner that is contrary to Arkansas’ narrative nutrient standard. EPA also did not address data and conclusions from the MWY study that did not support EPA’s decision. Thus, EPA used data in a manner that is contrary to Arkansas’ narrative nutrient standard and ignored data that refuted the basis for its decision to overlist seven segments as impaired. Finally, DEQ responded to public comments on Arkansas’ 303(d) list, and EPA did not identify any lack of public input or response in its Record of Decision.⁵²

G. EPA’s partial disapproval looks suspiciously like a flanking maneuver to attack the two federal lawsuits that DEQ filed against EPA.

EPA objected to two NPDES permits, referred to here simply as the NACA and Springdale permits, issued by DEQ in northwest Arkansas. In those permit objections, EPA claimed the discharges from NACA and Springdale violate Arkansas’ water quality standard for nutrients. In response, DEQ pointed out that EPA did not provide data and analysis to support EPA’s conclusion that the effluent limits in the permits would violate Arkansas’ water quality standard for nutrients. Ultimately, DEQ was forced to file two federal lawsuits challenging EPA’s objections to the NACA and Springdale permits as untimely, as an attempted illegal rulemaking, and unsupported by the

⁵¹ For example, EPA must first make a determination that the state’s currently approved water quality standard does not fulfil the requirements of the Clean Water Act. Then EPA must inform the state of the changes that are necessary to meet those requirements. The state then has an opportunity to fix its standard.

⁵² DEQ’s Response to Public Comments on Arkansas’ 303(d) list can be accessed at the following link: <https://view.officeapps.live.com/op/view.aspx?src=https://www.adeq.state.ar.us/water/planning/integrated/303d/pdfs/2020/deq-response-to-comments-for-the-2020-draft-list.docx>

data and science. In the Eighth Circuit, DEQ argued that EPA's claim to have established a water quality based effluent limit is an illegal rulemaking.⁵³

EPA and DEQ are currently in settlement discussions to resolve the pending litigation concerning the NPDES permits for NACA and Springdale. The main issues in those disputes are what permit effluent limits are necessary to protect water quality in northwest Arkansas streams, and EPA's failure to provide data and science to support EPA's proposed effluent limits. As presented above, Arkansas has actual, current data from Spring Creek that conclusively demonstrates that Arkansas' water quality is being maintained and all designated uses are being met. That data was collected downstream from Springdale's discharge, demonstrating that Springdale's discharge is not causing a violation of Arkansas' narrative standard.

EPA's partial disapproval of Arkansas' 303(d) list in light of EPA's lack of any valid supporting justification to contradict DEQ's Spring Creek data, appears like an attempt to bolster EPA's contested permit objections. Changing Arkansas' narrative standard to a numeric standard looks like an attempt to generate an after-the-fact justification for EPA's position in its permit objections.

In other words, if EPA can somehow successfully establish that 0.037 mg/L for total phosphorus is the new applicable water quality standard for these seven segments, then DEQ cannot rely on its Spring Creek data that demonstrates Arkansas' approved narrative standard is being maintained. EPA could then demand that DEQ demonstrate how DEQ's permits are protective of the new de facto standard of 0.037 mg/L for total phosphorus. Using that numeric standard, EPA could use nutrient concentrations alone to determine if those seven segment are impaired, despite DEQ's fish data and water quality data showing that nutrient concentrations alone do not equate to impairments.

Viewing EPA's partial disapproval as a post hoc justification for EPA's permit objections is one way to make sense of EPA's attempted application of Oklahoma's numeric standard for Oklahoma Scenic Rivers to determine that these seven Arkansas segments are impaired. By replacing Arkansas' narrative standard, EPA could force DEQ to use Oklahoma's numeric standard for Oklahoma Scenic Rivers as the applicable water quality standard for developing NPDES permits issued to dischargers in Arkansas.

⁵³ Coincidentally, replacing Arkansas' narrative water quality standard with an EPA-selected numeric standard and then using that standard as if it were the water quality standard applicable in Arkansas for purposes of EPA's review of Arkansas' 303(d) list would be another example of an attempted illegal rulemaking.

IV. Conclusion

EPA should reverse or withdraw its partial disapproval of Arkansas' 303(d) list. EPA did not apply the correct water quality standard. EPA did not provide sufficient scientific data to support its decision. EPA failed to disclose or address the findings of a scientific study EPA used that rejected EPA's position. DEQ's data supports DEQ's conclusion that Arkansas' narrative standard is being met, as does the MWY study that EPA cited. DEQ made EPA aware of these concerns regarding EPA's record of decision before EPA opened the public comment period on this action.