

February 5, 2025

(Via e-mail)

Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ)

Re: Rule 2, "Rule Establishing Water Quality Standards for Surface Waters of the State of Arkansas" and the Arkansas Triennial Review of Water Quality Standards

To Arkansas DEQ and whom it may concern,

The American Forest & Paper Association (AF&PA) and National Council for Air and Stream Improvement, Inc. (NCASI) appreciate the opportunity to provide input on Arkansas's Water Quality Standards through the Triennial Review process.

The American Forest & Paper Association (AF&PA) serves to advance U.S. paper and wood products manufacturers through fact-based public policy and marketplace advocacy. The forest products industry is circular by nature. AF&PA member companies make essential products from renewable and recyclable resources, generate renewable bioenergy and are committed to continuous improvement through the industry's sustainability initiative — <u>Better Practices</u>, <u>Better Planet 2030: Sustainable Products for a Sustainable Future</u>. The forest products industry accounts for approximately 5% of the total U.S. manufacturing GDP, manufactures about \$350 billion in products annually and employs about 925,000 people. The industry meets a payroll of about \$65 billion annually and is among the top 10 manufacturing sector employers in 43 states.

NCASI is an independent, non-profit research organization that focuses on environmental topics of interest to the forest products industry. NCASI conducts research and technical studies on behalf of forest products companies across the US, and its members represent over 80% of the pulp and paper production and two-thirds of wood panels produced nationwide. In its capacity as a research organization, NCASI has a long history of working to inform the science needed to achieve the environmental and sustainability goals of the forest products industry.

As Arkansas's triennial review commences, we wish to comment on the importance of Human Health Criteria Revision/Development. Our comments will focus on Human Health Water Quality Criteria (HHWQC) derivation.

To begin, states are not required to adopt EPA's national HHWQC. Under Section 304 of the

Clean Water Act (CWA), states have the primary responsibility to develop water quality standards, including the water quality criteria that are a key component of those standards. This is consistent with the concept of "cooperative federalism" that underlies the CWA, and the statute envisions a process by which states adopt water quality standards to address the water quality needs of its streams, lakes, and other waterbodies.

With respect to HHWQC, EPA issues national recommended HHWQC pursuant to Section 304(a) of the CWA, and states are to use these as the starting point for developing the water quality criteria in their water quality standards. However, EPA regulations (40 C.F.R. § 131.11(b)) are clear that states have three options when developing their criteria and submitting them to EPA for approval: 1) adopt the EPA national criteria, 2) modify the national criteria to reflect site-specific conditions, or 3) develop other "scientifically defensible" criteria.

On April 4, 2019, <u>EPA approved Idaho's HHWQC</u> that deviated significantly from the same EPA 2015 national default criteria. In that approval, EPA reiterated and emphasized that under the CWA's foundation of cooperative federalism and EPA regulations and guidance, a state has the right and flexibility to derive human health criteria based on both sound science and policy decisions using the best available data and risk management judgments (EPA's Technical Support Document - EPA Approval of the State of Idaho's New/Revised Human Health Water Quality Criteria for Toxics and Other Water Quality Standards Provisions, 2019).

Just this year, in the response to comment document for EPA's final rule on water quality standards and tribal reserved rights, while EPA determined that probabilistic risk assessment was outside of the scope for the rule, EPA noted that "[s]tates are free to pursue alternative criteria derivation methodologies as long as they result in criteria that as based on sound scientific rationale and are protective of the applicable designated use, pursuant to 40 CFR 131.11." (U.S. Environmental Protection Agency, Response to Comments for Water Quality Standards Regulatory Revisions to Protect Tribal Reserved Rights, at 57 (Apr. 2024)). EPA continues to emphasize the ability for states to develop their own suitable HHWQC and ADEQ has the discretion to consider the costs and benefits of adopting the national criteria. As it undertakes the risk management inherent in establishing its HHWQC, ADEQ also should recognize the uncertainties and conservative assumptions involved in risk estimates.

Moreover, national criteria are likely not reflective of the characteristics of Arkansas's waters or its population. For example, the national HHWQC are based on the assumption that every day, for 70 years, every person in the population drinks 2.4 liters (about 2.5 quarts) of water per day directly out of a lake, stream, or other surface water at the maximum allowed concentrations. In addition to assuming water has not been filtered or treated to remove any pollutants, 2.4 liters per day is more water than 90 percent of the people in the U.S. drink. Additionally, the HHWQC assumes each person consumes 22 grams of locally caught fish every day for 70 years, all of which are contaminated at the resulting criteria level and that none of the pollutants in the fish were lost due to preparation or cooking.

Several peer-reviewed publications in respected scientific journals discuss that use of multiple conservative inputs, some of which were described above, creates "compounded conservativism" resulting in criteria that are much more stringent than necessary to protect human health (NRC 2009; Lichtenberg 2010; Tatum et al. 2015; Barnhart et al. 2021; Barnhart et al. 2023). In short, it is extremely unlikely that there is a significant portion of the population that experiences most or all these exposure factors. In fact, it is possible that no one experiences all these exposure factors (see also Arcadis and NCASI, 2018).

In addition, the conservatism associated with exposure through drinking water intake and fish consumption are compounded by the conservatism built into the toxicity values used in HHWQC development. For example, the reference doses (RfD) sourced from the USEPA Integrated Risk Information System (IRIS) are typically derived with an uncertainty factor of 100. This means that most RfDs represent a concentration approximately 100 times lower than a concentration demonstrated to cause no harm in an animal study. This conveys a significant amount of protection for susceptible populations just within the toxicity value used in the HHWQC equation.

In lieu of adopting the default exposure parameters mentioned above, we suggest a systematic and inclusive rulemaking process is conducted to ensure that regional and state-specific data are used to appropriately define exposure inputs.

Although members of native American tribes may consume more fish than the general population, tribal exposure estimates should not be applied state-wide. We suggest that ADEQ conduct a thorough analysis of how other states account for tribal population exposure rates to determine the best path forward for deriving Arkansas's HHWQC. Multiple states have submitted, and have had EPA approve, HHWQC while accounting for exposures stemming from tribal entities within their state. For example, Idaho derived state-wide criteria based on fish consumption rates from tribal exposure surveys. These tribal populations represent a small subset of the entire state population and yet were chosen to drive state-wide criteria. Alternatively, states such as Florida and Maine derived two sets of HHWQC that applied in either tribal or non-tribal jurisdictions, respectively, to more accurately reflect actual exposure estimates throughout the state. While Georgia does not have federally recognized tribes, they are currently undergoing HHWQC development and are proposing to weight exposure (fish consumption) estimates based on population to capture distinct consumption levels among their coastal and inland populations. Since the vast majority of Arkansas's population do not

reside within tribal communities, we suggest that ADEQ not apply tribal exposure estimates to state-wide criteria but instead explore alternative methods to more accurately represent Arkansas's population.

Comparing HHWQC derived using probabilistic risk assessment (PRA), which more accurately reflects population characteristics and risk, with EPA's deterministic national recommendations will provide additional insight into the effects of compounded conservatism on HHWQC. AF&PA and NCASI previously worked with the Environmental Protection Division in Georgia during their (currently ongoing) triennial review, and they have developed Human Health Criteria using a more scientifically advanced method known as Probabilistic Risk Assessment (PRA). While U.S. EPA used a deterministic approach to derive their HHC recommendations, they have endorsed and used probabilistic approaches for many years (Schwartz 2016). The traditional deterministic risk assessment approach assigns a single, upper bound, value from a range of possible values to each parameter in an equation that yields an HHWQC. In contrast, PRA uses a distribution of values for one or more input parameters that more accurately characterizes the population the criteria is intended to protect. Criteria developed using PRA minimize compounded conservatism, yet are still robust, transparent, and protective. NCASI has user-friendly Excel and R-based tools to assist in the calculation of criteria using both probabilistic and deterministic methods. We suggest exploring these tools during the rulemaking process rather than adopting generic national recommendations to ensure adopted criteria reflect the environmental and management objectives of ADEQ.

AF&PA and NCASI are available, as needed, and are happy to schedule a meeting to provide additional details on the advantages of PRA for criteria development, available tools, potential sources of data that could enhance criteria robustness, or any other aspect of these comments.

We appreciate the opportunity to comment on Arkansas's current triennial review of water quality standards. We agree that HHWQC updates are important, but caution against adopting national recommendations that are not suitable for Arkansas's waters.

Best,

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References and Enclosed Documents:

- (Attached) Barnhart, B., Flinders, C., Johnson, G., Wiegand, P., Anderson, P., Morrison, E. and Houck, G., 2023. Ambient water quality criteria derived using probabilistic risk assessment. *Integrated Environmental Assessment and Management*, *19*(2), pp.501-512.
- (Attached) Derivation of Human Health Water Quality Criteria: Review of Key Scientific and Technical Assumptions and Approaches, 2018, prepared by Arcadis and NCASI.
- Barnhart, B., Flinders, C., Ragsdale, R., Johnson, G. and Wiegand, P., 2021. Deriving human health and aquatic life water quality criteria in the United States for bioaccumulative substances: a historical review and future perspective. *Environmental Toxicology and Chemistry*, *40*(9), pp.2394-2405.
- <u>EPA's Approval</u> of Idaho's New and Revised Human Health Water Quality Criteria for Toxics and Other Water Quality Standards Provisions and EPA's Technical Support Document - EPA Approval of the State of Idaho's New/Revised Human Health Water Quality Criteria, 2019 and 2016, p. 40.
- <u>EPA Risk Assessment Forum White Paper: Probabilistic Risk Assessment Methods and</u> Case Studies, 2014.
- Lichtenberg E. 2010. Economics of health risk assessment. Annu Rev Resour Econ. 2:53–75.
- National Research Council (NRC). 2009. Science and Decisions: Advancing Risk Assessment. Washington, DC: The National Academies Press. <u>https://doi.org/10.17226/12209</u>.
- <u>Response to Comments for Water Quality Standards Regulatory Revisions to Protect</u> <u>Tribal Reserved Rights</u> (USEPA, April 2024)
- Schwartz, Jerry. "BNA Insights: Human Health Criteria, Fish Consumption Rates More Important Policy Implications than Clean Water Rule?" Bloomberg BNA: Daily Environment Report. Issue No. 96. (2016): 2-7
- Tatum, V., Wiegand, P., Stratton, S., Louch, J., Ebert, E. and Anderson, P., 2015.
 Derivation of human health-based ambient water quality criteria: A consideration of conservatism and protectiveness goals. Integrated Environmental Assessment and Management, 11(2), pp.298-305.
- <u>Technical Support Document, Derivation of human Health-Based Criteria and Risk</u> <u>Impact Statement from Florida DEP, 2016.</u>