August 19, 2020

Dr. Lester Yuan
Health and Ecological Criteria Division
Office of Water (Mail Code 4304T)
Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Re: Comments on the Draft Ambient Water Quality Criteria Recommendations for Lakes and
        Reservoirs of the Conterminous United States

Dear Dr. Yuan,

On May 22, 2020, the United States Environmental Protection Agency (EPA) announced the release of the
Draft Ambient Water Quality Criteria Recommendations for Lakes and Reservoirs of the Conterminous
United States: Information Supporting the Development of Numeric Nutrient Criteria ("Draft
Recommendations"), for a comment period for scientific input. Comments were due July 21, 2020, and
the comment period was later extended to August 20, 2020. The Draft Recommendations are models for
total nitrogen and total phosphorus concentrations in lakes and reservoirs, designed to protect three
different designated uses – aquatic life, recreation, and drinking water source protection – from the
adverse effects of nutrient pollution.

The Water Environment Association of Texas (WEAT), Texas Association of Clean Water Agencies (TACWA)
are nonprofit organizations of Texas environmental professionals, practitioners, operations specialists,
and public officials in the water and wastewater industry, working together to benefit society through
protection and enhancement of the water environment. These Texas organizations have formed a
nutrient criteria workgroup ("Texas workgroup") to evaluate the Draft Recommendations, advise the
members of the individual organizations of the potential impact of these recommendations, and provide
comments in response to the agency's request.

The Texas workgroup provides the following comments regarding the Draft Recommendations. These are
categorized as general comments, comments on the data, comments on the models, and conclusions and
recommendations.

General Comments on the Draft National Criteria Recommendations

Whether a water resources manager, a drinking water provider, or a wastewater provider, the water
quality impacts from excessive nutrients is a long-standing concern to us for many reasons, as are the
means by which such nutrients are regulated and how they may be effectively controlled in our lakes and
reservoirs. The Texas workgroup, therefore, appreciates EPA's ongoing concern for water quality in the
United States, particularly with respect to nutrients.

As indicated in the Executive Summary for the Draft Recommendations, the EPA has proposed new data and draft models in accordance with provisions of Section 304(a) of the Clean Water Act (CWA). Section 304(a) calls for development of such criteria as recommendations, providing non-binding guidance to be used by states and authorized tribes in adopting water quality standards for pollutants that could have an adverse impact on aquatic species, recreation, and/or human health. States and authorized tribes have been given the flexibility under Section 304(a) to adopt criteria based either on EPA's recommended criteria or on other scientifically defensible methods, which could include EPA proposed criteria modified to reflect site-specific conditions.

With this understanding, the Texas workgroup provides the following general comments on the Draft Recommendations.

1. **The Draft National Criteria Recommendations should be clearer about the central role of states and authorized tribes in development and adoption of nutrient water quality standards.** While the Draft Recommendations point out the responsibilities of states and authorized tribes with regard to water quality criteria development, the tone of the discussion in the Executive Summary implies that the proposed Guidance must be used unless the state or authorized tribe can provide an explanation of why it has selected another approach. The Executive Summary should better convey the intent of Section 304(a), which provides that states and authorized tribes are responsible for development of water quality standards for pollutants, including nutrients, and that the proposed guidance is provided as technical support, should the state or authorized tribe desire to use it.

2. **The Texas Workgroup supports the approach of the Texas Commission on Environmental Quality concerning nutrient water quality standards in Texas lakes and reservoirs**. The Texas Commission on Environmental Quality (TCEQ), which has responsibility in Texas for establishing water quality standards and protecting the quality of the State's water bodies, has reviewed the Draft Recommendations. The Texas Workgroup has worked closely with the TCEQ and fully supports the agency's concerns regarding the Draft Recommendations. The TCEQ's own technical experts are diligently working to develop a viable approach to nutrient management in the State's water bodies. We support their efforts and recommend that the State be allowed to continue to develop its own approach, in concert with stakeholders.

3. **The Texas Workgroup supports the comments of the National Association of Clean Water Agencies.** The National Association of Clean Water Agencies (NACWA), has prepared and submitted comments to EPA addressing the Draft Recommendations. The Texas Workgroup includes the State affiliate of NACWA, i.e., TACWA, and fully supports NACWA's comments regarding the Draft Recommendation.

4. **The Texas Workgroup recommends that site-specific nutrient models and data be given greater weight than generalized statistical models when developing nutrient water quality criteria and assessing compliance.** EPA's stressor-response models are relatively simple regression models that provide high-level assessments of nutrient-algae response over large regions of the United States. While these models are helpful for waterbodies where water quality data are scarce, they are also limited in that they consider only a handful of nutrient-related variables. These models do not account for important growth-related variables such as temperature, water clarity, retention time, which can alter the relationship between nutrients and cyanotoxins. To compensate for the limitations, EPA stressor-response models incorporate

significant safety factors that produce very stringent criteria and may result in overly expensive control measures that yield limited benefit in reducing risk of cyanotoxins.

On the other hand, sophisticated modeling tools such as WASP and CE-QUAL-W2 can be used to develop more representative models – as long as there are sufficient data to calibrate them. The Texas Workgroup believes that whenever available, well-calibrated, site-specific nutrient models should be used to quantify the relationship between nutrients and algae and cyanotoxins. These models can be used to identify more effective and appropriate nutrient criteria to protect waterbodies than the EPA stressor-response models.

Comments on the Data Used in the Draft National Criteria Recommendations

The core of the development of any scientifically defensible water quality criteria is the acquisition and use of good data. Nutrient impacts on lakes and reservoirs is very site-specific, so for the development of nutrient water quality standards, it is necessary to have a sufficient body of data for each water body being considered. This is no small undertaking, and despite years of data collection for the Draft Recommendations, the database is still critically limited in its temporal and spatial scope. Following are specific comments of the Texas workgroup regarding the data.

5. The data used in the development of the document were collected nationally over a period extending from 2007 to 2012. Texas experienced its worst drought in decades during this period. The analysis of data collected under such conditions will necessarily skew the results of any modeling performed using it. We suggest that the data used may not be adequate to drive the proposed models.

6. The data set does not account for regional or watershed differences. Site-specific factors need to be considered along with nutrient levels when assessing risk of cyanotoxins. The data also does not differentiate among seasonal or climatic differences.

7. A potential solution for the previous comment relating to the data adequacy is for states to collect their own data to either supplement or replace the data used in the Draft Recommendations. The Executive Summary (page xiv) notes that states often collect extensive data as part of their routine monitoring process. However, critical data applied in these models is not often routinely collected. For example, cyanobacteria and microcystins are not routine parameters in most States currently. It will take years for many states to collect the necessary volume of applicable data and EPA must allow states the time to complete this critical task.

8.   Several analytical methods are widely used for measuring cyanotoxins and cyanobacteria and can exhibit different levels of accuracy and susceptibilities to bias. For instance, the two types of methods for measuring microcystin (ELISA-based and LC-MS-based) are based on different principles and can sometimes produce inconsistent results. This casts uncertainty in the EPA stressor-response model and makes criteria derived from such a model vulnerable to challenges.

Comments on the Models Developed in the Draft National Criteria Recommendations

As NACWA noted in its comments on the Draft Recommendations, the statistical approach proposed is useful for exploring patterns on a large geographic scale but is not appropriate for deriving broadly-applicable water quality criteria. In addition to specific concerns with the modeling approach expressed by NACWA and the TCEQ, the Texas workgroup provides these comments on the modeling approach.

9. The EPA models focus primarily on correlating cyanotoxins to nutrients. This approach does not adequately account for other important factors such as temperature, turbidity and weather patterns that impact cyanobacteria growth. These factors vary significantly across the United States and cause significant variation in stressor-response relationships.

    For instance, in the Northern US/Great Lakes Region, temperatures that are optimal to cyanobacteria growth (~27°C or ~80°F) are found in the summer. This coupled with abundant daylight, low precipitation and water clarity during the summer can provide a favorable environment for cyanobacteria to grow. The alignment of favorable conditions can heighten the risk for harmful algal bloom events. On the other hand, in Texas and along the Gulf Coast, favorable conditions mentioned above are not well-aligned. During the summer, temperatures often exceed the optimal range for cyanobacteria growth. While optimal temperatures can be found during the late fall or early spring, heavy precipitation during these periods can reduce water clarity and increase flushing in lakes. These factors can limit algal growth even when nutrients are abundant.

10. Elevated presence of cyanobacteria does not always lead to significant cyanotoxin production. The events that trigger production are highly complex and not fully understood. Several hypotheses (such as allelopathy) are still being researched by the scientific community. Furthermore, elevated algae levels do not always indicate elevated cyanobacteria population. In addition, high nutrient levels do not always lead to elevated algae levels.

11. Extrapolating cyanotoxin likelihood to the derivation of TP and TN criteria is unnecessary and problematic. At the present time, the parameter related to nutrients that directly effects the suitability of water for aquatic life, recreation, and drinking water uses is chlorophyll-*a*. The actual concentrations of TP and TN have no impact on water uses, except that they may result in algal growth. The relationships between TP and TN with respect to algal growth are highly variable and subject to much uncertainty. The development of management programs for TP and/or TN to control algal growth is appropriately left to the TMDL process in those specific cases when algal growth is a problem.

12. The high uncertainty in the EPA model means that significant safety factors need to be incorporated to derive nutrient targets that reduce credible risk of harmful algal bloom events. This can result in stringent nutrient limits that cause unnecessary economic burden to permittees.

13. The EPA document provides that states, if they wish, can propose revisions to the model. The challenge with this is that collecting the data and revising the model is a time- and cost-intensive effort. EPA should be very clear that it will be supportive of states that intent to pursue that effort.

In closing, the Texas Workgroup and the constituents it represents appreciate the EPA's ongoing efforts to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. We recognize that EPA and TCEQ have worked closely over the years to protect the State's surface water quality. The Draft Recommendations represent a significant effort on EPA's part. As indicated in the comments above, the Texas Workgroup believes that the Draft Recommendations provide valuable technical tools with which to evaluate potential nutrient criteria in Texas reservoirs and Lakes. Nevertheless, there are shortcomings in the proposed models and gaps in the database that drive the models. The TCEQ must, therefore, be allowed to develop its own approach, in concert with the State's water/wastewater utilities and other stakeholders.

Thank you for your consideration of these comments. Please do not hesitate to contact Julie Nahrgang at 210.325.3087 if you have any questions.

Sincerely,

Julie Nahrgang
Executive Director, WEAT|TACWA

Copies: L'Oreal Stepney, PE, Texas Commission on Environmental Quality
   Emily Remmel, National Association of Clean Water Agencies
   Rick Hidalgo, WEAT President
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