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May 15, 2017

VIA REGULATIONS.GOV

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: EPA-HQ-OA-2017-0190
Evaluation of Existing Regulations
Comments of the Texas Water Conservation Association

Dear Administrator Pruitt:

The Texas Water Conservation Association (TWCA) hereby submits its comments to your agency's solicitation of comments in regard to public input on existing regulations that could be repealed, replaced or modified to reduce regulatory burdens. The Texas Water Conservation Association is a 501(c)(4) association of water professionals and organizations in the state of Texas. Our members represent river authorities, municipalities, navigation and flood control districts, drainage and irrigation districts, utility districts, municipalities, groundwater conservation districts, all manner of water users, as well as general and environmental water interests. The membership includes engineers, hydrogeologists, attorneys, government administrators, and numerous other individuals committed to Texas water resource management.

Executive Order 13,777 requires that federal agencies "lower regulatory burdens on the American people by implementing and enforcing regulatory reform." Exec. Order No. 13,777, § 1, 82 Fed. Reg. 12285 (Mar. 1, 2017) (EO 13,777). Existing EPA regulations impose unnecessary costs upon TWCA members, which are in turn passed on to households and business in the State of Texas. Those costs and burdens are sometimes imposed without any coordinate benefit to the environment. Accordingly, those regulations are "unnecessary or ineffective" and "impose costs that exceed benefits." EO 13,777, § 3(d)(ii), (iii), 82 Fed. Reg. 12285, 12286. TWCA trusts that the EPA will honor the administration's unequivocal call for regulatory reform in EO 13,777, and provides the following comments in furtherance of EPA's regulatory review.

Bacteria

EPA requires States to establish water quality standards for bacteria to protect recreational users of natural waterbodies. Recommended recreational criteria were first issued in 1986 and were updated in 2012.

The method by which EPA is requiring States to implement the water quality standards for bacteria has led to many waterbodies being inappropriately determined to be non-compliant with water quality standards. This results in these waterbodies being included in the 303 (d) List of Impaired Waters, which imposes a substantial burden on regulatory agencies and local governments to conduct Total Maximum Daily Load (TMDL) studies and to implement programs to try to bring those waterbodies into compliance. The cost of TMDL studies is very substantial, and the costs of implementing any programs developed through the studies can also be very high. Specifically, 303(d) impairments can inhibit development in a watershed; once a segment is placed on the 303(d) list, no additional activities that could further the impairment are allowed. This includes increased flows from publicly-owned treatment works (POTWs) that are expanding because of development in the region. In cases where the exceedance of the criteria is due to naturally occurring conditions, there is really no effective program to achieve the water quality standards for these waters despite the regulatory burden described above. There is no actual benefit derived from the costs of the TMDL studies and implemented programs for those waterbodies that exceed water quality standards due to naturally occurring conditions.

The recommended water quality standard criteria for bacteria are intended to protect recreational uses of waterbodies (wading, swimming, boating, etc.). The epidemiological studies used to develop the criteria typically were conducted at areas of recreational use. These data, thus, tend to be biased towards times when users are present, not during times when heavy rainfalls produce substantial stormwater runoff.

Stormwater runoff is contaminated by fecal material of pets and wildlife, as well as other sources of bacteria present on the surface of the ground or waterbody sediments. It is typical for the bacterial counts present in runoff to be several orders of magnitude greater than the counts present in waters that do not contain runoff. The extent of the increase in bacterial counts associated with the presence of stormwater runoff is, to some extent, dependent on whether the contributing watershed is urban or minimally impacted by man's activities. However, even samples containing runoff from minimally impacted watersheds contain bacterial counts that are orders of magnitude above the criteria and above the bacterial counts when runoff is not present.

Therefore, to the degree that a water quality data set for a waterbody contains results for samples influenced by stormwater runoff events, the bacterial counts will be substantially increased. A further consideration is that natural water bodies are not typically used for contact recreation during rainfall events or while the impacts of runoff are obvious.

Based on the direction from EPA, when States interpret water quality data to assess whether water bodies are compliant with water quality standards for recreational uses, they are not allowed to exclude samples influenced by runoff. Thus, waterbodies are placed on the 303 (d) List for what is a naturally occurring condition.

The EPA should allow states to include high-flow exemptions in their stream standards assessments regarding contact recreation.

Dental Amalgam

The dental amalgam rule constitutes an unnecessary regulatory burden that is ineffective and imposes costs that exceed benefits. TWCA requests that the EPA repeal the Dental Amalgam Rule.

On December 15, 2016, Gina McCarty, then Administrator of the U.S. Environmental Protection Agency (EPA) signed the final rule promulgating Effluent Limitations Guidelines and Standards for the Dental Category[1] and sent the Dental Amalgam Rule to the Federal Register for publication. However, in accordance with the Regulatory Freeze Pending Review directive issued by Reince Priebus, Assistant to the President and Chief of Staff, to the Heads of Executive Departments and Agencies on January 20, 2017, the EPA withdrew the Dental Amalgam Rule before it was published. The National Resources Defense Council (NRDC) filed litigation against EPA over the withdrawal of the Dental Amalgam Rule arguing that the procedure used to withdraw the rule was not consistent with the federal Administrative Procedure Act and contending that the freeze does not apply to the Rule because the rule is subject to statutory or judicial deadlines.

If the Dental Amalgam Rule becomes effective, regulations will establish technology-based pretreatment standards under the CWA to reduce discharges of mercury from dental offices into (POTWs. The Rule will require dental offices to use amalgam separators and two best management practices recommended by the American Dental Association. The compliance date for existing sources subject to the rule will be three years from the effective date of the Rule, and new sources would be required to comply immediately with the standards of the Rule.

The Dental Amalgam Rule is an unnecessary federal regulation that seeks to force national requirements on wastewater discharges best handled at the local level. Local agencies are much better suited to develop control strategies for these types of businesses because local action can more efficiently and cost-effectively require the degree of control that is warranted.

Many local entities already have robust best-management practices programs to address dental amalgam. In 2005 the EPA gave local governments authority to implement best-management practices as a type of local limit through revisions to the pretreatment regulations[2]. The rationale for setting local limits under 40 C.F.R. Section 403.5(c) is that the local limits are established as necessary to prevent pass through of pollutants and interference at particular POTWs. It has taken local governments and the EPA years to incorporate those "streamlining" changes into local ordinances and pretreatment programs. Those authorities are not generally in place and are available for local governments to use. Rather than promulgating new, unnecessary and redundant national "one size fits all" pretreatment requirements based upon best management practices, EPA should give local governments the opportunity to control any mercury discharges from dentist offices through use of best management practices established as local limits. Because federal authority already exists for local governments to impose any necessary best management practices, the cost to dentist offices of any additional requirements, including recordkeeping requirements, due to the national regulation would exceed the benefits.

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[1] 40 C.F.R. Part 441. Dental Amalgam Rule.
[2] 40 C.F.R. Section 403.5(c)(4)

EO 13,777 also supports repeal of the Dental Amalgam Rule because EPA used out-dated information to evaluate the environmental need for of the Rule. Based upon a 1982 study known as the 50 POTW Study[3], EPA determined the median percent removal by POTW's achieving secondary treatment is 90.2 percent for total mercury. Concerned that the 50 POTW Study data were old and not reflective of current POTW treatment capabilities, the National Association of Clean Water Agencies (NACWA) submitted data from a nationwide voluntary survey of its members regarding mercury reductions at POTWs. Based upon its analysis of the data collected in the survey, NACWA calculated a three-year average mercury removal efficiency of 94 percent[4]. Despite these findings, the EPA decided to use the 90.2 percent removal assumption from the outdated 50 POTW Study to determine need for the pretreatment requirements. For EPA to analyze whether costs to dentist offices and POTWs of added requirements exceed the environmental benefits, the EPA must use current and accurate data on the scope of the environmental problem that the costs are intended to address. EPA failed to do that for the Dental Amalgam Rule. The rule should be withdrawn.

Anti-backsliding

EPA's anti-backsliding regulation, as currently drafted in 40 C.F.R. 122.44(l), ineffectively implements the Clean Water Act's recognized exceptions to anti-backsliding, which are needed to protect against artificially-stringent effluent limitations that are not needed for protection of instream uses and water quality.

The rule is outdated, unnecessary, or ineffective and creates a serious inconsistency or otherwise interferes with regulatory reform initiatives and policies

The anti-backsliding provision in Section 402(o) of the CWA is designed to restrict which discharges may be increased from previously permitted levels. As Section 402(o)(2) makes clear, however, certain exceptions apply and backsliding, in those circumstances, is authorized. Such exceptions include material and substantial alterations or additions to the permitted facility, additional information becoming available that justifies less-stringent effluent limitations, technical mistakes or mistaken interpretations coming to light, or events beyond the control of permittee occurring. These exceptions are important in allowing for permitting flexibility to accommodate unique circumstances and avoid unnecessary expenditures of public funds in the case of POTWs.

However, under EPA's corresponding regulations, the scope of those exceptions is muddled. Particularly, 40 C.F.R. 122.44(l)(1) provides:

> Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under § 122.62).

[3] EPA, 1982. Fate of Priority Pollutants in Publicly Owned Treatment Works. EPA 440/1-82/303

[4] National Association of Clean Water Agencies, 2015. February 20, 2015 letter to EPA Water Docket ID No. EPA-HQ-OW-2014-0693. https://www.nacwa.org/docs/default-source/default-document-library/2015-02-20dental-comments.pdf

As drafted, this section suggests that only those exceptions itemized in 40 C.F.R. 122.44(l)(2) will authorize an applicant to avoid the prohibition on backsliding, which directly contradicts the language in the parenthetical authorizing relief from anti-backsliding if the circumstances at the facility have changed such that permit modification or revocation and reissuance under § 122.62 is triggered. In short, the language limiting the exception to what is listed in § 122.44(l)(2) effectively nullifies the additional exception provided in the parenthetical in § 122.44(l)(1).

To clearly give effect to the entirety of § 122.44(l)(1), the regulation should be revised to make the parenthetical a standalone subsection to which § 122.44(l)(1) explicitly references as an exception to the prohibition on backsliding.

Additionally, § 122.44(l)(2) provides that the backsliding prohibition applies "[i]n the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA . . . ." However, Section 402(a)(1)(B) of the CWA is, from years of non-comprehensive amendments that were not reconciled throughout the CWA, onerous to interpret. Specifically, the reference in Section 402(a)(1)(B) to "all such requirements, such conditions as the Administrator determines are necessary to carry out this chapter" is an indubitably vague provision. Thus, whether and to what extent an application seeks revisions to effluent limitations to which the anti-backsliding is applicable remains unclear.

The remedy is to revise 40 C.F.R. 122.44(l)(2) to detail precisely which effluent limitations are established on the basis of Section 402(a)(1)(B) of the CWA.

This suggested action on these two provisions of 40 C.F.R. 122.44 would provide greater clarity to permitting authorities and permittees on the implementation and application of anti-backsliding in permits.

Drinking Water Health Advisories and Support Documents for Cyanobacterial Toxins and Perfluorinated Compounds

EPA announced ten-day health advisories (HAs) for two cyanobacterial toxins, microcystins and cylindrospermopsin on June 17, 2015[5] along with a support document for states and utilities to consider whether and how to manage these toxins[6]. On May 25, 2016, EPA established health advisories (HAs) for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS)[7]. These HAs also contained recommended actions for drinking water systems that include sampling, notifying their states if any results are above 70 parts per trillion (ppt), providing public notification to consumers, and listing treatment options.

The process used by EPA to develop these HAs and associated guidance lacked transparency in key respects, marginalized the opportunity for public review and comment on important risk management and operational decisions, and failed to satisfy the high-quality standards necessary to support the Agency's action. Additionally, they were issued without the full consideration of the feasibility, cost, and related issues normally assessed during the Safe Drinking Water Act regulatory development process[8].

[5] 80 FR 34637, June 17, 2015
[6] EPA 815-R-15-010, June 2015
[7] 81 FR 33250, May 25, 2016
[8] 42 U.S.Code 300 g– 1

TWCA recommends that EPA review these HAs and associated guidance to ensure it meets criteria (3) of Executive Order 13,777 to ensure that the imposed costs do not exceed the benefits. Additionally, we would like EPA to develop a participatory stakeholder process to address economic, scientific, technical, and policy concerns.

Standardized Monitoring Framework

In 1991, EPA developed a standard monitoring framework for the Phase II regulation for 38 inorganic and organic contaminants[9]. This framework was intended for future regulations for source-related contaminants associated with chronic health effects. In summary, initial sampling of these and any new drinking water contaminants includes two quarterly samples for ground-water systems and four quarterly samples for surface-water systems. If all of the initial samples are reliably below the maximum contaminant level (MCL), then follow-up sampling is reduced to annual or triennial. The framework sets a process for waivers to reduce or eliminate sampling for certain contaminants based on consideration of prior analytical results and/or vulnerability assessments.

This framework, however, rarely results in sampling waivers and even more infrequent are waivers that eliminate sampling. EPA's most recent six year review of existing national primary drinking water rules revealed several contaminants that have *de minimus* occurrence[10]. However, water systems must still bear the cost of monitoring for these contaminants. TWCA recommends EPA estimate the total cost savings that would result from further reducing sample collection and analytical testing based on this occurrence.

For example, carbofuran occurred with a mean concentration higher than EPA's health benchmark in one system serving fewer than 1,000 people. This represents 0.00% of all systems and 0.0004% of the U.S. population[11]. One large system in Texas has collected 42 samples for carbofuran during the three-year monitoring period of January 1, 2014 – December 31, 2016. Each sample collected is analyzed for nine additional parameters using the EPA Method 531.1. These include regulated contaminants aldicarb, aldicarb sulfone, aldicarb sulfoxide, and oxamyl. Oxamyl was also shown in the six-year review data to occur in two systems (0.01%) serving a total of fewer than 10,000 people (0.004%). In addition, the TCEQ includes analyses for unregulated contaminants baygon, carbaryl, 3-hydroxycarbofuran, methiocarb, and methomyl in each sample for EPA Method 531.1. The laboratory bills a unit cost per sample instead of per analyte for this group. For the 42 samples, the total cost to the water system for analyses was approximately $2,400. When labor is included, the cost nearly doubles to $4,500. None of the ten analytes were detected in any of the 42 samples.

While $4,500 for a large system over three years may not seem significant, over the same time period the same system had no detections in 40 samples for 18 herbicides[12]. There were also no detects in 42 samples for ethylene dibromide (EDB), dibromochloropropane (DBCP), or 1,2,3-trichloropropane[13]. The

[9] 56 FR 3526; Guidance EPA 570/F-91-045, February 1991
[10] 82 FR 3518, January 11, 2017
[11] *Id.*
[12] EPA Method 515.4
[13] EPA Method 504.1 Rev. 1.1

unit cost is much higher for herbicides samples resulting in a cost of approximately $14,600 over the three-year period. The EDB/DBCP cost for the same period was approximately $5,300. For the 11 regulated contaminants monitored, there were no detections in any of the 444 analyte tests performed on the herbicide and EDB/DBCP samples. The total cost to the system to monitor for compounds with zero detections for 2014 – 2016 was $24,400. This represents 24 percent of the total monitoring cost for inorganics, organics, radionuclides, and disinfectant byproducts.

Another consideration that must be made is the fact that the tests for these analytes use reagents such as hexane that are themselves toxic. The disposal of these reagents creates an unnecessary environmental burden.

TWCA recommends that EPA implement the standardized framework as intended to provide waivers for systems to further reduce and eliminate contaminants based on consideration of prior analytical results and/or vulnerability assessments. We further recommend EPA estimate the total cost savings to further reduce sample collection and analytical testing based on contaminants with *de minimis* occurrence.

Aquatic Life Criteria for Conductivity

The EPA is calling for the development of aquatic life criteria for conductivity. The justification for this action is based on observations of changes in conductivity resulting in changes in aquatic life composition. However, because conductivity is a composite variable consisting of multiple ions, some of which are benign and others that can be rendered benign in certain combinations, changing conductivity does not necessarily affect aquatic life. Therefore, the use of a composite variable like conductivity to protect aquatic life is ineffective and carries associated costs that outweigh benefits.

The effects of conductivity on aquatic life depend upon the particular ions present as well as their ratio to one another. Toxicity varies strongly as a function of specific ion composition and can be mitigated by elevated hardness. For example, chloride and sulfate toxicity is known to be decreased by increasing hardness, however this is ignored when a general conductivity criterion is used. For these reasons, conductivity is not an appropriate standard for an aquatic life criterion; there is simply no defensible correlation between conductivity and aquatic life responses. Should conductivity standards be mandated and implemented, POTWs would be placed in an implacable situation; they would be faced with meeting a criterion for which there is no practical treatment technology. While technology does exist to extract ions from water (i.e. reverse osmosis), the process is tremendously expensive and can create a highly-toxic reject-stream that would constitute disposal issues and environmental hazards that did not exist before.

Recognizing that the components of conductivity can be toxic, EPA and others have developed data to support ion-specific criteria and states have successfully implemented ion-specific standards. For example, the State of Iowa adopted, and EPA approved, chloride and sulfate standards[14]. These criteria are based on scientifically-defensible data and take into account specific ions, rather than a gross-measurement of combined ions in conductivity. These criteria are protective and effective in regulating dissolved salts.

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[14] Iowa Department of Natural Resources. Revising Criteria for Chloride, Sulfate and Total Dissolved Solids. http://www.iowadnr.gov/portals/idnr/uploads/water/standards/ws_fact.pdf?amp;tabid=1302

EPA should not pursue conductivity standards.

Whole Effluent Toxicity

The EPA Policy for establishing chronic whole effluent toxicity permit limits[15] is ineffective and should be repealed.

Because the EPA policy guidelines are inconsistent with the capability of testing for chronic toxicity[16], discharge permits with WET limits risk producing arbitrary permit violations. The WET method provides for the variability of test of non-toxic effluent are expected to produce results that suggest the presence of a toxicant. For example, a permittee subject to a WET limit and discharging non-toxic effluent would yield a passing test most of the time but may have a sporadic failure some of the time, the latter outcome could constitute a permit violation and potentially trigger an EPA enforcement action.

EPA has previously acknowledged that permitting authority must account for the limitations of the WET test[17]; nevertheless, EPA Region VI requires the TCEQ to issue permits with shortened duration after a single WET test failure. Furthermore, permits with WET limits have no provisions to address the inevitable fact that WET test results will with some frequency be wrong. This exposes permittees to possible fines for permit violations, and the potential for civil lawsuits.

The WET test has proven to be a useful tool to avoid the discharge of toxics in toxics amounts. However, the EPA policy of requiring chronic WET permit limits does not account for the limitations of the chronic WET tests. Furthermore, practical alternatives exists. For these reasons, EPA should not require Texas to include sub-lethal WET limits in TPDES permits.

Test of Significant Toxicity

EPA has been advising state agencies to adopt the Test of Significant Toxicity[18] (TST) to interpret WET test results. Compared to the approved methods of test interpretation, the No Observed Effect Concentration (NOEC) and the 25% effect Inhibition Concentration (IC25), the TST is less reliable and increases the risk of falsely identifying an effluent exhibiting toxicity[19].

Contrary to convention, the TST reverses the null hypothesis by assuming that an effluent is toxic and then looks for evidence that there is no toxic effect. The TST test increases the frequency of false WET test failures and thus increases the incidence of permit noncompliance. The TST limitations, in particular

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[15] EPA, 1994. Whole effluent Toxicity (WET) Control Policy. EPA 833-B-94-002

[16] Moore, T. F., Canton, S. P. and Grimes, M. (2000), Investigating the Incidence of Type 1 Errors for Chronic Whole Effluent Toxicity Testing using *Ceriodaphnia dubia*. Environmental Toxicology and Chemistry, 19: 118–122.

[17] EPA, 2000. Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing. EPA 821-B-00-004

[18] EPA, 2010. National Pollution Discharge Elimination System Test of Significant Toxicity Technical Document. EPA 833-R 10-004

[19] Interlaboratory Evaluation of Chronic WET Test Precision Using Non-Toxic Matrix Blank Samples Synthesized to Represent the Natural Ionic Composition of Freshwaters in Western States. Timothy F. Moore, Risk Sciences, ©2004 (submitted as an affidavit to the U.S. Court of Appeals in Edison Electric, et al v. U.S. EPA)

the increased likelihood of falsely-identifying an effluent as toxic, can result in permittees being needlessly exposed to civil, and even criminal, liability.

WET test interpretation is difficult because it is performed on living organism with natural variability. The EPA has promulgated two methods for determining endpoints in chronic WET test results: IC25 and NOEC. Both of these methods are being used by EPA and state agencies, however, EPA is promoting their replacement with the TST method. While both IC25 and NOEC endpoints have shortcomings, replacement with the TST method is the wrong response, needlessly increasing regulatory burden with no demonstrable environmental benefit. EPA should not pursue the TST method for interpreting WET results.

Numeric Nutrient Criteria

The national directive to develop numeric nutrient criteria that focus on nitrogen and phosphorus, rather than directly on water quality concerns, constitutes an undue regulatory burden that is ineffective and imposes costs that exceed benefits. It is widely recognized that excessive loadings of nutrients from point and non-point sources can produce undesirable levels of algae and aquatic vegetation in certain situations. Accordingly, EPA has developed a strategy and guidance that directs states to establish water quality standards that will provide a basis for developing programs to address these concerns.

EPA began this process in 1998, when it issued a National Nutrient Strategy.[20] The strategy directed states to establish numeric nutrient criteria in the form of concentration limits for nitrogen and phosphorus. Since 1998, EPA has issued numerous supplemental memos and guidance documents based on this same concept. However, the approach being pursued by EPA pursuant to their guidance is not based in sound science and, if implemented as directed, could require many communities to expend significant funds with little or no environmental benefit.

The EPA approach to controlling growths of algae and aquatic vegetation requires states to establish numeric water quality standards for nitrogen and phosphorus. Additional standards for other parameters may also be established, but EPA believes numeric criteria for these two nutrients are required in all cases.[21] This approach is unreliable with respect to achieving the desired results and falsely assumes that elevated levels of nitrogen or phosphorus will result in nuisance conditions regardless of other factors. There are, however, significant factors other than nitrogen and phosphorus concentrations that influence the extent of growth of algae and aquatic vegetation. These include turbidity, velocity, substrate composition, and light, among others.

A significant body of research exists that documents light limitation as a controlling variable with regard to the growth of algae and aquatic vegetation. Research conducted in Texas by the Trinity River Authority, with assistance from the University of Texas at Arlington,[22] has demonstrated this phenomenon specifically and shown that reducing nutrient concentrations would require significant

[20] 63 FR 34648. Notice of National Strategy for the Development of Regional Nutrient Criteria.
[21] EPA, 1998. National Strategy for the Development of Regional Nutrient Criteria. EPA 822-R-98-002.
[22] TRA, 2005. Investigations into the Relationship Between Water-Column Algal Concentrations and User Perceptions of the Suitability of Lake Livingston for Recreation and Aesthetic Enjoyment. http://www.trinityra.org/downloads/Water-Column%20Algal%20Concentrations%20Lake%20Livingston.pdf.

expense while gaining little if anything in the way of improved water quality. In some cases, it would take an order of magnitude reduction of nutrients to bring them to levels that would be limiting; achieving such concentrations is both impractical and cost prohibitive. Additional research in the Trinity River has shown that algal concentrations in the river are greatest above point sources where nutrients are lowest, but light penetration is greatest.[23]

If universally required for lotic systems, the EPA mandate to develop numeric nutrient criteria for nitrogen and phosphorus would result in nutrient removal being implemented at wastewater treatment facilities across the country, often in small rural communities that can least afford the associated capital and operational costs associated therewith. These costs could potentially be hundreds of millions of dollars, while achieving little or no instream benefits. At the same time, upstream sites where algal concentrations are greater despite the absence of point sources and high-nutrient concentrations would likely have no identified nutrient impairments, regardless of nuisance response conditions that may not exist downstream of wastewater treatment facilities. In this sense, nutrient criteria are arbitrary; insisting upon causal variables (nitrogen and phosphorus) ignores the fact that appropriate instream concentrations of nutrients vary from point to point in a specific waterbody. Therefore, the permit limits and control programs that would be established based on standards that do not account for these other factors will frequently be either over- or under-protective despite significant costs and unintended consequences (*e.g.*, increased biosolids from precipitated nutrients that create a disposal burden on local communities at additional, significant costs).

Because nitrogen and phosphorus are causal variables and not response variables, concentrations of these constituents are not, in and of themselves, problematic. They become problematic only under certain water quality conditions when they illicit a biotic response, such as heavy algal growth. The usual approach to establishing water quality standards is to identify the specific instream concentrations of substances that impact uses; for example, standards are established to preclude low dissolved oxygen concentrations harmful to aquatic life, metals concentrations that are toxic to aquatic life or humans, and bacteria levels that are a concern with respect to recreation.

Nutrient water quality standards should be based on response variables, for example chlorophyll-*a* (an indicator of the amount of algae present) or density of aquatic vegetation, and not on causal variables. Permit limits and control programs can then be established for causal variables so that the desired instream conditions are achieved or maintained. This is analogous to the approach used to maintain instream dissolved oxygen concentrations at appropriate levels. Permit limits are established for 5-day Biochemical Oxygen Demand (a causal variable) so that the desired instream concentrations of dissolved oxygen (a response variable) are maintained.

The requirement to use nitrogen and phosphorus as numeric nutrient criteria to prevent nuisance algal and aquatic vegetation growth should be repealed. States should be allowed the flexibility to use response variables such as chlorophyll-*a*; this should be explicitly permitted in future guidance documents.

TWCA would like to thank EPA for this opportunity to provide input on regulations that are in need of

[23] Upper Trinity Water Quality Compact, Nutrient Modeling Phase I Technical Update. Unpublished work. Data available upon request.

review under Executive Order 13,777. This review is a opportunity to consider the effectiveness and costs of important programs as well as the unintended-consequences of past actions. We hope that the comments in this letter provide substance and actionable-information that will benefit the EPA, the environment, and the citizens of the United States of America.

Sincerely,

Dean Robbins

Dean Robbins
General Manager