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February 29, 2008

Benjamin Grumbles

Assistant Administrator, Office of Water
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW (MC4101M)
Washington, DC 20460

Dear Mr. Grumbles:

The National Association of Clean Water Agencies (NACWA) is pleased to provide the U.S. Environmental Protection Agency (EPA) with comments in response to the Petition for Rulemaking on Secondary Treatment Standards for Nutrient Removal submitted by the Natural Resources Defense Council (NRDC) on November 27, 2007. Although there is no formal comment period in response to such a petition, NACWA believes it can share important insight on the issues raised by NRDC that could assist EPA in formulating an appropriate response to the petition.

NACWA and its public utility members recognize the potentially significant environmental issues caused by excess nutrient levels in the nation's waterways and are committed to working with governmental agencies and others to implement effective methods for nutrient reduction where necessary. Many NACWA members have already taken aggressive action to reduce their nutrient discharges as part of the water quality-based approaches that are the foundation of the Clean Water Act, while others are exploring options for nutrient reduction. All are dedicated to improving the water quality of their local communities and understand the important role minimizing nutrient loadings can sometimes play. However, NACWA has serious concerns with the approach advocated by NRDC in its petition, particularly regarding the call for national nutrient limits as part of the secondary treatment process. As true environmental practitioners committed to protecting the health of our nation's waters, NACWA and its members believe that a national nutrient limit for publically owned treatment works (POTWs) is not only technically and financially impractical but also is not the most effective nor environmentally sensitive way to reduce nutrient pollution.

NACWA received extensive comments from its members regarding the petition. The comments came from a diverse cross-section of NACWA's public agency members, representing a wide range of different geographic locations and service area population sizes. Although each set of comments presented a slightly different viewpoint, the responses expressed serious concern with the petition's focus on a technology-based solution to reduce nutrient limits. Additionally, the call for national nutrient limits as part of secondary treatment was criticized for taking a "one size fits all" approach to a water quality problem that is site-specific and best addressed through site-specific measures.

NACWA will address concerns with the petition in five broad areas: (1) the legal basis for incorporating nutrient removal into secondary treatment, (2) the failure of the petition to address the contribution to nutrient loadings from non-point sources, (3) the potentially exorbitant costs for POTWs to meet a national nutrient limit and whether such expenditures are cost-effective, (4) the increased negative environmental impacts of mandating a national nutrient removal limit, and (5) the inappropriateness of national limits for local and regional water quality issues. Additionally, these comments will detail why NACWA believes site-specific water quality efforts will be more effective at removing nutrients than a technology-based approach with a national nutrient removal limit.

EPA Has the Legal Discretion Not to Include Nutrient Removal as Part of Secondary Treatment

NRDC discusses in its petition a number of earlier attempts by various groups to include nutrient removal as part of secondary treatment standards and outlines why EPA has previously denied such requests. NACWA believes EPA had the legal discretion under Sections 301 and 304 of the Clean Water Act (CWA) to deny the previous petitions, as evidenced by the 10th Circuit Court of Appeals decision in *Maier v. U.S. EPA*, 114 F.3d 1032, affirming EPA's denial of one such petition. Additionally, NACWA does not believe NRDC has sufficiently explained why this most recent petition should be treated differently from previous requests to regulate nutrients as part of secondary treatment, nor why EPA should use its discretion to change the definition of secondary treatment. Despite the petition's significant discussion of various technical advancements related to nutrient removal, NACWA disputes the petition's statement that these new technical capabilities "clearly qualify" as secondary treatment as currently defined. In fact, many of these technologies constitute tertiary treatment, going well beyond not only the Congressional intent of secondary treatment as expressed in the CWA but also long-standing EPA regulations defining the scope of secondary treatment. Furthermore, NACWA does not believe the petition sets forth sufficient legal basis or technological facts to justify EPA using its discretion under the CWA to redefine secondary treatment to include national nutrient removal. Simply describing a set of new technologies and alleging that these new techniques can be easily incorporated into existing secondary treatment procedures, as done in the petition, does not establish a legal basis for EPA to reverse its prior denials of requests to incorporate nutrient removal as part of secondary treatment.

The Petition Fails to Account for the Nutrient Contribution from Non-Point Sources

Although the petition calls for national nutrient limits on POTWs, it fails to acknowledge the more significant nutrient loadings from non-point sources. By leaving out any mention of the role of non-point sources, the petition ignores the simple fact that, even if all POTWs were to completely remove all nutrients from their discharges, the nation's waterways would still face a significant nutrient impairment problem. For example, the

petition references the National Science and Technology Council's Integrated Assessment of Hypoxia in the Northern Gulf of Mexico as a definitive source on the extent of the hypoxia problem currently facing the Gulf of Mexico as a result of nutrients. However, this same report provides an estimate of the input sources of nitrate and total nitrogen from the Mississippi-Atchafalaya River Basin to the Gulf, and finds that municipal and industrial point sources only account for 9% of the total nitrate and 11% of the total nitrogen. Therefore, 89% of the nitrogen problem in the Gulf comes from non-point sources, and would see no improvement under the proposed rulemaking outlined in the petition. NRDC's conclusion at the end of Section One of the petition that "protection of the nation's rivers, lakes, streams, and estuaries depends on technology-based requirements to minimize releases from known nutrient sources" through POTW effluent limits is flawed and inadequate as it does not take into account the considerably more significant contribution from non-point sources. Additionally, a solely technology-based approach applied only to POTWs will not be as effective at reducing nutrients as would a water-quality based approach which provides opportunities for POTWs to partner with agriculture and other non-point sources to more efficiently and effectively reduce overall nutrient loading from both point and non-point sources.

The Petition Significantly Underestimates the Cost for POTWs to Meet a National Nutrient Standard

Many NACWA members have commented on the significant discrepancy between the costs cited in the petition to incorporate nutrient removal and the actual resources that POTWs have invested on nutrient removal technology. NRDC cites various studies in the petition which suggest that the per person, per year cost for biological nutrient removal (BNR) can range anywhere from \$8.15 to \$15.40 and that the average capital costs for upgrading a plant treating more than 10 million gallons per day (MGD) is \$588,000 per MGD. However, NACWA members who have already installed nutrient removal technology as a result of local, site-specific needs report spending up to \$168 per person per year in capital costs and approximately \$2 million per MGD for plants treating over 10 MGD. Furthermore, the per MGD dollar amount increases for plants treating less than 10 MGD. These NACWA members also report that, despite spending these significant sums of money on nutrient removal, they are sometimes not able to meet their nutrient removal targets due to the complexity of the technology and a variety of external factors, including weather conditions and flow rates. They also report higher annual operation and maintenance (O&M) costs, directly contradicting statements made in the petition that nutrient removal technology will lead to lower O&M costs.

Other NACWA members who have not yet installed nutrient removal technology have estimated their costs to meet the suggested national limits outlined in the petition. These capital costs range anywhere from \$1.2 million to \$2.7 billion, depending on the population size served by the utility and size of the plants to be upgraded. Based on population size, the per person costs to complete these upgrades can run as high as \$442 per person. These same utilities have also estimated an increase in annual O&M costs ranging anywhere from \$1.12 million per year to \$130 million per year, with some utilities facing a potential annual O&M cost increase of 50%. Many of these utilities are also in the process of spending hundreds of millions, if not billions, of dollars on system upgrades as a result of decaying infrastructure or consent decrees and are uncertain about the ability of their communities to absorb additional costs relating to nutrient removal mandates.

A major factor affecting the cost of nutrient removal at POTWs is the fact that many utilities must physically expand the size of their plant to include the necessary equipment. For some plants this will mean purchasing additional land, adding to the cost of the retrofit. Other plants simply do not have any way to obtain the physical space necessary to expand and must explore even more costly alternatives. Some plants without the room to expand have instead chosen to reduce their overall plant capacity in order to make room for the necessary nutrient removal technology, a decision which can negatively affect their abilities to treat wet weather flows and can lead to an inability to meet permit limits. NACWA members who have already adopted BNR techniques report that they often cannot achieve the necessary nutrient reduction levels using BNR alone and have had to add expensive chemical treatment techniques to meet the necessary nutrient limits. This adds an extra unexpected cost to an already extremely costly process.

Given the considerable expense involved with meeting the proposed nutrient limits in the permit, NACWA members have serious concerns about the cost-effectiveness of mandating such an approach. As stated earlier, the total amount of nutrient discharge from POTWs is a small percentage of the total loading, and even if all nutrients were eliminated from POTW discharges there would still be significant problems in almost all nutrient-impaired water bodies as a result of non-point sources. Recent studies, including a 2004 report of the Chesapeake Bay Commission, suggest that point source controls are not particularly cost effective as compared to non-point controls. The report stated that the dollar per pound of nutrient costs for point source upgrades were approximately two to five times more expensive than other leading agriculture non-point source control measures such as nutrient management and conservation tillage. It is notable that the point source costs estimated did not include costs for the most expensive point source projects such as across-the-board limit of technology, which would widen the cost gap even further.

Mandating National Nutrient Removal Would Have Unintended Negative Environmental Impacts

NACWA members have also commented on the unintended negative environmental consequences of requiring all POTWs to achieve nutrient removal, including an increase in the carbon footprint of wastewater plants and increasing the quantity of biosolids requiring disposal. The increased carbon footprint will result not only from the nitrogen removal process but also from the increased energy usage necessary to power the technology needed to achieve the proposed nutrient reduction levels. For utilities in states such as California where greenhouse gas reduction requirements are on the horizon, increased emissions due to higher energy usage and nitrogen removal are cause for serious concern. Higher energy usage also translates into increased emissions of airborne nutrients in the form of increased nitrogen oxide (NO_x) emissions. Additionally, the plant expansion necessary for most utilities to meet mandated nutrient reduction would result in adverse environmental impacts from land clearing, creation of more impervious surface cover, and create huge demands on materials such as concrete and steel, all of which would also lead to increased emissions of airborne nutrient loads from increased NO_x emissions. The manufacture and transport of these materials would also contribute to increased greenhouse gas emissions resulting from nutrient discharge reductions. A national mandate for nutrient removal at POTWs would have significant adverse environmental impacts that could potentially erase any benefit gained by the nutrient removal.

The adverse impacts from nutrient controls at POTWs must be viewed in comparison with non-point source controls, many of which are nonstructural. Nonstructural controls use little energy and have a reduction in carbon footprint due to carbon sequestration from trees and plants. These nonstructural controls also produce other environmental improvements which often accompany addressing nutrient enrichment, such as sediment controls, flow stabilization during wet events, and temperature controls as a result of bank vegetation. Furthermore, nonstructural controls are generally much more economical on a dollar per pound of nutrient removed basis.

A National Technology-Based Nutrient Removal Limit Creates an Impractical “One Size Fits All” Approach

Requiring national nutrient limits would establish a “one size fits all” approach that is inappropriate because of the site-specific effects of nutrients. The environmental impacts of nutrient loadings on receiving waters vary widely depending on the hydrodynamics of the water system, its associated assimilative capacity, and the intended use of the waterbody. The assimilative capacity of a waterbody can vary depending on a number of factors, including the time of the year, the depth of the water column, the flushing rate of the waterbody, sedimentation rates, and the form and type of nutrient. As an example, nutrient loadings vary seasonally and tend to be higher at times of the year with significant precipitation and associated stormwater runoff. Additionally, the flushing rate of a waterbody is associated with the ability of the system to dilute existing nutrients and reoxygenate itself through tidal currents or connection to oxygenated ocean or bay water. Based upon a given POTW’s discharge point within a waterbody, the flush rates can differ significantly, and thus can affect the impact of nutrient loadings.

NACWA does not believe there is any debate that there are technically sound distinctions regarding nutrient water quality concerns between different waterbodies. That holds for waterbody categories such as lakes, streams, rivers and ocean dischargers as well as specific individual waterbodies. For example, a small stream with limited flushing or located in an agriculture zone may have greater relative water quality concern due to nutrients than a wastewater discharge extended out 7 miles out into Pacific Ocean with a deep water outfall. There are differences even with seemingly similar water bodies; for example, the Chesapeake Bay is known to have nutrient impairments while San Francisco Bay, due to its shallow depth and significant currents that stir up turbidity, does not have a documented problem.

A national nutrient limit of the type proposed in the petition ignores the scientific realities of all the varying factors above, and would be both ecologically and economically ineffective. Additionally, a national limit could place a severe burden on smaller communities by forcing them to abandon their present wastewater treatment systems for more advanced nutrient removal technologies that they may not be able to afford to install or operate, or which will provide any significant environmental benefit to their local waters. Instead, the more appropriate solution is to determine appropriate site-specific water quality-based limits via the established mechanisms in the Clean Water Act and then determine suitable nutrient control measures. This allows communities to respond appropriately to the environmental needs of their local waterways and also ensure they spend their financial resources in a cost-effective manner.

NACWA is Supportive of Water Quality Based Approaches to Reducing Nutrients

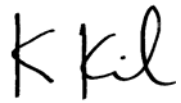
NACWA is fully supportive of water quality-based approaches to reducing nutrients that focus on the site-specific needs of local water bodies. As noted above, this approach takes into account the specific hydrologic characteristics of a given waterbody and allows regulators and utilities to fashion a nutrient reduction program that will be both environmentally beneficial for downstream waters and cost-effective for the local community. Additionally, a water quality approach can take into consideration the impacts of nutrient loadings from non-point sources, which must ultimately be addressed if excess nutrient levels are to be brought under control. The national nutrient limit proposed by the petition relies solely on a technology-based approach and fails to solve the significant nutrient problem from non-point sources. Many NACWA members are already engaged in water quality nutrient reduction initiatives, including water quality trading programs and partnerships with local farmers and agricultural interests to build riparian buffers and decrease agricultural runoff. States have also explored the benefits of a water quality approach, including Virginia which has recently done significant work on developing site-specific standards for nutrients. There is also technical information on the effectiveness of site-specific plans, like a recent report from the Water Environment Research Foundation entitled "Technical Approaches for Setting Site-Specific Nutrient Criteria," which points out that a water quality based approach is preferable when attempting to reduce nutrient loads. These efforts prove that water quality based projects are technically achievable and provide the best combination of environmental benefits, cost-effective financial investment, and local flexibility to reduce the total nutrient loading to a given waterbody.

NACWA recognizes the challenges facing the states as they have worked over the last decade to develop numeric water quality standards for nutrients. In light of these difficulties and the delays they have caused, it is tempting to look to the technology-based approach that has made tremendous improvements in the quality of our nation's waters. However, nutrients and the unique problems they pose, namely the prevalence of non-point source contributions, are simply not suited for such an approach. Additionally, there are substantial funding needs for a technology-based approach, as evidenced by the fact that the last federally mandated technology-based program for POTWs would not have been possible without the federal grant program under the Clean Water Act. Municipal clean water utilities are already facing a significant financial crisis in the face of crumbling infrastructure needs and rising construction costs and would be incapable of pursuing an aggressive technology-based federal mandate to limit nutrients without a new federal grant program to help pay for the necessary costs.

NACWA appreciates the opportunity to provide comments on the petition, and looks forward to continued work with EPA on the important issue of reducing nutrient loads in our nation's waters. If you have any questions or would like to discuss this issue further, please contact Chris Hornback, NACWA's Senior Director of Regulatory Affairs at chornback@nacwa.org, or Keith Jones, NACWA's General Counsel, at kjones@nacwa.org.

B. Grumbles Letter
February 29, 2008
Page 7 of 7

Sincerely,

A handwritten signature in black ink, appearing to read "K kil". The "K" is a simple vertical line with a horizontal crossbar. The "kil" is written in a cursive style, with the "i" having a dot and the "l" being a simple vertical line.

Ken Kirk
Executive Director

CC: Ephraim King
Mary Smith
James Hanlon