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Division of Water Quality

June 18, 2007

## MEMORANDUM

TO: Benjamin H. Grumbles, Assistant Administrator, US EPA

FROM: Coleen H. Sullins

SUBJECT: Response to the EPA May 25<sup>th</sup>, 2007, Memorandum on Nutrients

Our Division is in receipt of your recent memo to State Water Program Directors pertaining to action by states on nutrient pollution and numeric water quality standards. The State of North Carolina offers the following comments as a more precise representation of its program to manage nutrient pollution and numeric water quality standards:

North Carolina has proactively adopted and maintained a suite of both numeric and narrative nutrient criteria, including both causal and response variables, for many years. For over two decades the State has implemented a statewide chlorophyll *a* water quality standard for all surface waters in North Carolina. The established chlorophyll *a* standard for lakes, rivers, streams and estuaries is 40 ug/L, with a stricter standard of 15 ug/L for any trout use designated surface waters. In addition, the State of North Carolina has existing numeric dissolved oxygen (DO) and pH water quality standards, both numeric and narrative, that function as response criteria for nutrient stress. To complement and reinforce the suite of water quality standards, North Carolina has also adopted a stringent narrative standard that allows the State Environmental Management Commission to prohibit or limit the discharge of wastes into State surface waters if the discharge would result in the growth of microscopic or macroscopic vegetation that would impair the intended best usage of the water. North Carolina has already adopted a water quality standard for turbidity. Common non-algal turbidity in waters in this State precludes the use of clarity as an effective tool in North Carolina as a response variable for nutrients. However, the turbidity standard has been effective in NC to identify sediment-impacted waters: By implementing this standard, NC has effectively been able to identify sediment pollution that may be accompanied with phosphorous pollution.

The State of North Carolina has approached managing nutrients with proactive strategies, based upon adaptive management techniques, and believes this has proven to be the most viable method to control excessive nutrients from point and non-point sources. In line with this philosophy, North Carolina established a "Nutrient Sensitive Waters" (NSW) classification for its surface waters, which has been successfully utilized to implement a number of site-specific nutrient management plans in North Carolina's surface waters, affecting a significant portion of the State. The North Carolina NSW classification is based on site-specific, relevant, scientifically based information. Not only are the NSW rules scientifically based, but the rules are packaged into complex strategies that have been

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successfully implemented. If you are not familiar with the State programs, please review the North Carolina Administrative Codes at 15A NCAC 02B .0229, .0232, .0233, .0234, .0235, .0236, .0238, .0239, .0240, .0241, .0242, .0255, .0256, .0257, .0258, .0259, .0260 and .0261.

<http://h2o.enr.state.nc.us/admin/rules/documents/Redbook2007.pdf>

These comprehensive and proactive programs, which are codified in NC water quality rules, mandate the development and implementation of a flexible, site-specific nutrient management strategy for any surface water so designated. The NSW classification is based upon an evaluation of response variable parameters including, but not limited to: exceedances of the nutrient response stress standards (Chlorophyll *a*, dissolved oxygen, pH, turbidity), fish kill frequencies, frequency and duration of algal blooms, taste and odor observations, sediment loading, aesthetic complaints and a thorough examination of the relative contribution of point and non-point sources to the overall nutrient issue.

Using this practice, the State has already designated 15,203 square miles as being in the watersheds of designated Nutrient Sensitive Waters. This means that activities conducted within approximately 30% of the entire land mass of North Carolina are already regulated under some form of site-specific nutrient management strategy. The recent memo to State Water Program Directors from EPA understates and undermines what North Carolina has achieved. North Carolina's actions toward nutrient management are significantly more than "collecting data for all parameters or waters." In the case of the Neuse River and Tar-Pamlico River basins (two of the largest river basins in the State), this designation has resulted in the implementation of a *mandatory* nutrient management strategy throughout their entire basins and the implementation of a broad range of controls for both point and non-point sources of nutrient pollution, including nitrogen (N) and phosphorus (P) limits. In the third basin, the Chowan River basin, all discharges were eliminated and land application implemented. Controls in these three basins have resulted in documented P and N reductions and reduced the frequency of algal blooms, among other successes. These rules contain specific nutrient management strategies for wastewater dischargers, stormwater management and agricultural operations.

As part of the Tar-Pamlico NSW Nutrient Management Rules, codified and effective in North Carolina since 2001, there have been controls on P which has resulted in very stringent controls on some cropland areas, greenhouse areas, golf courses, grassed public recreational lands, turfgrass areas, garden areas, and in industrial, commercial and residential areas. As a result of the NSW designation of the Neuse and Tar-Pamlico Rivers, mandatory 50-foot wide riparian buffers (including a 30-foot "no touch" buffer closest to the surface waters) have been established for approximately 5,800 miles of streams and rivers within the State. Nutrient trading programs for point sources have been incorporated as an integral part of the Tar-Pamlico and Neuse NSW management strategies. This approach has also included stringent (including no discharge) limits on point sources, and more than \$100,000,000 in nonpoint source nutrient controls for agriculture. State legislation (HB 515 / Session Law 1997-458) requires strict point source limits for N and P for dischargers to NSW waters. More recent State legislation (SB 981 / Session Law 2005-190) prohibits additional point source allocation to certain drinking water supply reservoirs and required the analysis and reporting of the status of data on water supply reservoirs in the State.

Even prior to the state's SB 981, major efforts had been underway using the state's existing standards regime to address chlorophyll *a* impairments in B. Everett Jordan Reservoir, High Rock Lake, and Falls Lake, major reservoirs in North Carolina. North Carolina has completed a TMDL for Jordan Reservoir and is pursuing a suite of rules to control and reduce N and P loading from both point and nonpoint

sources that has an estimated implementation cost over thirty years of close to \$1 billion dollars. There has been at least a seven year effort to develop and write these rules, which constitutes the most stringent nutrient management strategy in the state. Public hearings to seek comments on the rules are anticipated this summer. We invite EPA staff to attend in order to hear first-hand from some of the proposed affected regulated parties. In addition, water quality monitoring is underway at High Rock Lake and Falls Lake in order to collect data for proposed modeling and TMDL development.

While actively involved in all of the above and in accordance with North Carolina's approved 106 Work plan, the State is devising methodology to further proactively designate appropriate surface waters of the State to prevent nutrient impairments. As part of the States' mutually agreed upon Nutrient Criteria Implementation Plan with US EPA (most current revision submitted to EPA in October 2005 but not mutually agreed upon by EPA until June 2006), the State will review its chlorophyll *a* standard and has pursued additional academic research on chl *a*/biology/stressor relationships, and on user perceptions and taste/odor relationships.

North Carolina will willingly provide the data, methods and analyses used to derive or refine criteria values to protect all state waters (all water body types – lakes/reservoirs, rivers/streams, estuaries/coastal waters.) NC has an abundance of data with regard to the four parameters identified by EPA as pertinent to address nutrient criteria. The State of North Carolina remains committed to continued cooperation with the EPA and to full disclosure of all pertinent information in regards to the assessment of water quality in the State. The State remains actively engaged in further developing the existing Nutrient Criteria Implementation Plan to prevent and protect against future nutrient impairments.

We recognize the difficulty in reporting broadly on the status of complex, technical projects covering so many States and areas of great diversity. However, the May 25, 2007 Memorandum from EPA under-recognizes the multitude of extremely tough, resource consumptive programs and projects that are completed, established and underway in North Carolina. The EPA Memorandum is not an accurate reflection of the hard work that the State of North Carolina is involved in to prevent and protect the waters of this State from nutrient impairments.

CHS: jpm

cc: Jim Giattina