

Fiscal Note**Rule Citation Numbers:**

15A NCAC 02B .0206, Flow Design Criteria for Effluent Limitations
 15A NCAC 02B .0211, Fresh Surface Water Quality Standards for Class C Waters
 15A NCAC 02B .0212, Fresh Surface Water Quality Standards for Class WS-I Waters
 15A NCAC 02B .0214, Fresh Surface Water Quality Standards for Class WS-II Waters
 15A NCAC 02B .0215, Fresh Surface Water Quality Standards for Class WS-III Waters
 15A NCAC 02B .0216, Fresh Surface Water Quality Standards for Class WS-IV Waters
 15A NCAC 02B .0218, Fresh Surface Water Quality Standards for Class WS-V Waters
 15A NCAC 02B .0220, Tidal Salt Water Quality Standards for Class SC Waters

Rule Topic: Classifications and Water Quality Standards Applicable To Surface Waters and Wetlands of North Carolina

DENR Division: Division of Water Resources

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Impact Summary: State government: Yes
 Local government: Yes
 Private industry: Yes
 Substantial impact: Yes
 Federal government: Yes

Authority: NC General Statutes 143-214.1 and 215.3(a)

Necessity: The proposed rule amendments are based upon review of the surface water quality standards and classifications in accordance with the Federal Water Pollution Control Act (Clean Water Act) Section 303(c)(1) and State of North Carolina regulations in 15A NCAC 02B. Several numerical concentrations and narrative rule changes are proposed to meet national guidance and establish allowable concentrations of pollutants that protect public health and aquatic life. The North Carolina Environmental Management Commission approved taking these proposed amendments out for public hearing on March 11, 2010.

Link to Proposed Amendments:

http://portal.ncdenr.org/c/document_library/get_file?folderId=521751&name=DLFE-13938.pdf

1. Summary

Section 303(c)(1) of the Clean Water Act (CWA) mandates States to review and modify water quality standards, as needed, but at least once every three years. These proposed amendments to 15A NCAC

02B regulations comprise the state's 2008-2012 Triennial Review of Surface Water Quality Standards. DWR has identified several numerical concentrations and narrative rule changes that are warranted to maintain the objectives of the CWA goals and provide a more thorough decision making process for assessing surface water quality. The EMC has given DWR approval to proceed with rulemaking to revise the Surface Water Quality Standards in 15A NCAC 02B .0200. Revision of these standards is required by the Clean Water Act in order to ensure that they contain the appropriate protective health and toxicological information.

Revisions proposed include updates to standards for some metals, the addition of a flow design criterion, and 2,4-D standards. The following is a brief description of each revision.

Metals: Proposed revisions to various surface water quality standards for metals in 15A NCAC .0211 and .0220 reflect:

- Updates to National Recommended Water Quality Criterion (NRWQC) published by the US EPA includes: arsenic, beryllium, cadmium, chromium III, chromium IV, copper, lead, nickel, silver, and zinc;
- Change to dissolved metal concentration, where appropriate;
- Addition of acute and chronic standards;
- Incorporation of hardness-based metals standards, expressed as equations, to account for water hardness's ability to moderate metals toxicity;
- Sampling and assessment protocols for acute and chronic standards;
- Language relating to the demonstration of aquatic life use attainment to promote a fuller assessment of water's quality before identification of the water as threatened or impaired by metals concentrations; and
- A proposal has been made to remove the iron standard. Iron is a naturally occurring metal in the sediments, groundwater and surface water of the state.

Flow Design: Proposed revisions to 15A NCAC .02B .0206 include the incorporation of a new flow design criterion to be used with the proposed acute metals water quality standards. A flow design criterion is used in the development of water quality based effluent limitations (National Pollutant Discharge Elimination System permit limits) as a simplified means of estimating the acceptable frequency and duration of deviations from the water quality standards.

2,4-D: The US EPA has published revised information with respect to the non-carcinogenic human health effects of 2,4-D, a chlorophenoxy pesticide/herbicide. North Carolina is proposing to revise the human health standard applicable to all water supplies to include this updated toxicity information.

2. Costs

The division solicited information from potentially affected parties and received responses from wide variety of stakeholders including environmental advocates and members of the regulated community, such as private industries; local governments, state government, federal agencies and state regulatory agencies. Information provided by outside sources was used with information that the division collected to provide estimated costs and benefits (See Sections I - X of the Triennial Review Fiscal and Economic Analysis document).

- State Agencies from funding on standards changes of 2,4D and metals

Assuming current state agency programs were maintained at existing levels, costs to DENR DWR programs could be approximately \$300,000 per year for changes to monitoring and permitting.

However, since there is no state or federal funding to cover these potential additional costs, the division will reduce sampling frequencies, alter sampling sites, and shift personnel responsibilities to operate within the existing budget. With adoption of more adequately protective water quality standards, the Division of Water Resources (DWR), state residents, and researchers will benefit from improved accuracy in its water quality assessment capabilities. The DENR Division of Waste Management (DWM) and North Carolina Department of Transportation (NC DOT) were evaluated for impacts. DWM conducts monitoring and cleanup programs on private sites containing constituents for which revised surface water standards are proposed. Based on their knowledge of the current sites under their programs, they do not project increased division costs. NC DOT identified a potential for an increased number of waterbodies to be identified and listed in "Category 5" of the state's 303(d) list of impaired waters due to metals concentrations. No direct costs to NC DOT's programs are expected at this time.

- **Wastewater Dischargers**

The division reviewed 2,949 permits, screening out 2,227 permits where metals were clearly not parameters of concern. The remaining 722 permits were included in the analyses. Based on these analyses, the divisions estimated that 106 treatment facilities may receive new or continued water quality based limitations for one or more metals. Another 21 facilities are projected to revert to monitoring only; while 2,822 facilities (96% of existing wastewater permits and Certificates of Coverage) are not expected to be impacted by the proposed metals standards. The division estimates that the impacts of implementing the proposed metals standards on wastewater dischargers will have a net present value (NPV) of \$181 million in the first thirty years of implementation (private and local sectors). The division also assessed the uncertainties inherent in the analysis and estimates that the impacts could range from as low as \$100 million to as high as \$276 million NPV during that period.

- **Stormwater Dischargers**

The State of North Carolina manages both a state authorized stormwater program (state stormwater program) and a separate federally delegated National Pollution Discharge Elimination System stormwater program (NPDES stormwater program). The state stormwater program will not be impacted by the proposed rules because those permits do not impose any monitoring based on any of the water quality standards regulations proposed for revision.

For those entities covered under the federally delegated NPDES stormwater program, the proposed rule changes may have positive or neutral cost impacts for local government and private stormwater permit holders as the regulations allow modifications to on-going activities such as developing and implementing appropriate best management practices and monitoring frequency.

- **NPDES Coalition Monitoring**

The NPDES Coalition Monitoring Program is a voluntary, discharger-led, ambient monitoring program that provides an effective and efficient means for assessing water quality in a watershed context. A monitoring coalition is a group of NPDES dischargers that combine resources to collectively fund and perform an instream monitoring program in lieu of performing the instream monitoring required by their individual NPDES permits. The collaboration frequently reduces monitoring costs for an individual discharger by sharing the burden across the coalition.

The current monitoring program costs approximately \$75,000 per year for total recoverable metals monitoring. Under the proposed rules and current monitoring requirements, monitoring costs for dissolved metals could increase by approximately \$271,000 without mitigation efforts. These costs can be mitigated numerous ways including collaboration between the coalitions and the Division of Water Resources to modify the number of stations and frequency of sampling or a discharger can withdraw from the program; therefore, no estimate of potential costs is possible at this time.

In conclusion for the costs:

a) For 2,4-D on

The proposed change to the standard for the pesticide/herbicide 2,4-D is not expected to cause an impact, as it has not been detected in wastewater discharges in North Carolina. It will also have no impact on stormwater discharges and coalitions.

b) Metals

1. State Agencies: In relation to funding, these standards' change would not impact the State and would be non-applicable for the Private, Local and Federal Sectors.
2. Wastewater Dischargers: The standards' change would impact the Private, Local, State and Federal Sectors in the order of, respectively, \$41 million, \$140 million, \$210,000 and \$100,000.
3. Stormwater Discharges: The standards' change for stormwater discharges have unquantifiable benefits or No Impacts for the Private, Local and Federal Sectors.
4. Coalitions: For the coalitions, the Private Sector has options for mitigation, while there were no observed impacts for the Local and Federal Government.

3. Benefits

The proposed revisions to the aquatic life based standards are designed to prevent water quality degradation and improve the overall quality of the state's surface waters. The rule proposals provide for a more accurate identification of waters with high metals concentrations, as well as a more thorough decision making process for assessing waters for inclusion on the impaired waters list. The pesticide/herbicide, 2,4 - D is not commonly problematic in NC waters and therefore no benefits are attributed directly to the 2,4 -D standard revisions. Conversely, high metals concentrations are already known to compromise North Carolina's water quality. Very detailed analyses on benefits can be found on Section X of the Triennial Review Fiscal and Economic Analysis

Regulations aimed at environmental protection provide a wide range of benefits to the public. The economic benefits identified in this fiscal note are divided into two main categories; use and non-use benefits. Use benefits include the direct and indirect use of environmental goods and services by humans (such as fish consumption, recreational fishing) and the option to use environmental goods and services at a future date or in future generations. Non-use values are associated with the public's desire to know that an environmental resource exists and is protected even if they do not expect to use the resource for their direct economic benefit.

In evaluating benefits for these rule proposals, the following uses were assessed in detail:

- Drinking water;
- Aquatic life (biodiversity);
- Commercial fishing; and
- Other uses (economic development, human health and non-use values).

Of those uses, the division was able to monetize benefits related to drinking water, aquatic life, and commercial fisheries. Some unquantifiable benefits related to the above uses as well as benefits related to current and future economic development opportunities, reduced human exposure to pollutants, protection of resources for future generations and stewardship/preservation were qualitatively described.

Monetized Benefits of Proposed Rules – Annual Summary

Uses Analyzed	Range of Estimated Annual Benefits (shown in millions of dollars)		
	Low	Average	High
Avoided Drinking Water Treatment Costs (Operations and Maintenance Only)	\$3.4	\$4.0	\$4.6
Aquatic Life (Biodiversity)	\$ 1.1	\$ 14.0*	\$ 280
Commercial Fishing	\$0.006	\$0.009	\$0.012
Other Uses (Economic Development, Human Health and Nonuse values)	Cannot be monetized – presented qualitatively		
Annual Sum of Monetized Benefits	\$4.5	\$ 18	\$ 284.7

*This value is not an average of the low and high estimates as was done for the other monetized benefits categories. This value accounts for a 0.25 percent change in water quality which would impact 100 percent of NC's population as per the modeling results.

The Net Present Value (NPV) of the benefits to the public expected from the rule proposals is estimated to be approximately \$195 million dollars during a 30-year period. This fiscal note also looked at an alternative benefit analysis to assist with verifying the primary estimate. The alternative benefit analysis estimates direct benefits that are anticipated to the health of aquatic communities through money spent by impacted parties to comply with the proposed metals standards for freshwaters. It is estimated, using the alternative analysis that the average benefit over the 30-year implementation period for the proposed rules is up to \$1.4 trillion dollars.

Total Economic Impact

Costs and benefits calculated during a 30-year period using 2012 dollars which were discounted at a rate of seven percent and adjusted for inflation using a rate of two percent per annum. The final total economic costs (\$181 million) are less than those estimated in some of the public estimates received by the division for use in the fiscal analysis. The difference is based on the use of more facility specific data for metals, flow, effluent and ambient hardness and the continued use of Action Level water quality standards per 15A NCAC 02B .0211 and .0220 in this fiscal analysis. Benefits were conservatively estimated to be \$195 million NPV during the next 30 years. Overall, the estimated total economic impact (benefits + costs) due to the proposed rule changes is projected to be \$376 million.