Enclosure 2. Summary of North Carolina Surface Water Quality Standards 2000-2003

Background

The 2000 – 2003 Triennial Review was initiated in the summer of 2001. Changes to the surface water quality standards rules were developed after receiving input from three public meetings held in Raleigh, Mooresville and Wilmington during September 2001. Permission to proceed with rule making was received from the Water Quality Committee (WQC). A Notice of RuleMaking Proceedings (NRP) for the 2000-2003 Triennial Review was published in the November 1, 2001 edition of the *North Carolina Register* (Attachment 2, Page 3 of Enclosure #3.) An additional public meeting was held in March 2002 to respond to the public comments and to provide additional updates to the proposed standard changes. (Attachment 3, page 5 of Enclosure # 3)

Permission to proceed to public hearing with the final proposals was received from the Water Quality Committee and the Environmental Management Commission in April and May of 2002, respectively. Details of the public hearings are presented in the Report of Proceedings, which is included in this package as Enclosure 3.

In October 10, 2002, the EMC considered adoption of the changes recommended by the Hearing Officer's report. With the exception of the changes recommended to the MTBE standard, the EMC approved the proposed changes. The Environmental Management Commission expressed concerns that the available MTBE data may be insufficient to determine its appropriate carcinogenicity factor. The committee requested the standard development be reviewed by the Water Quality Committee before a recommendation would be issued. The remainder of the rules were sent to the Rules Review Commission (RRC) for their review. The final rules are included as Enclosure 4.

Summary of the Rule Changes

This summary provides the rationale for the implemented changes.

Arsenic:

15A NCAC 02B .0208, 15A NCAC 02B .0212, .0214 - .0216 and .0218

North Carolina's current arsenic standard of 50 μg/L was based on the drinking water maximum contaminant level (MCL) promulgated by EPA in 1975. This standard was equal to the standard set in 1943 by the U.S. Public Health Service, for interstate water carriers, which was not based on a risk assessment.

EPA recently completed a review of the arsenic criteria for public drinking water supplies and proposed 10 μg/L as the drinking water standard (MCL). On October 31, 2001, the EPA affirmed the appropriateness of the 10 μg/l MCL and reaffirmed its intention to adopt this standard.

The EMC and the RRC, after required public hearings determined that a human health standard for arsenic of 10 μg/l would be established for all fresh and salt waters of the State. In addition, an in-stream standard for arsenic of 10 μg/l would be established for all water supply (WS) classified waters of the State.

Methylene Blue Active Substances (MBAS):

15A NCAC 02B .0211 (MBAS standard removed)
15A NCAC 02B .0212, .0214 - .0216 and .0218 (MBAS added)

The Methylene Blue Active Substances (MBAS) standard was previously 500 μg/l or 0.5 mg/l for Class C waters of North Carolina. In determining whether a change to the MBAS standard is appropriate, staff reviewed available toxicity data for MBAS and its constituents. The possibility of changing MBAS to an Action Level Water Quality Standard was also investigated, but it was determined that anionic surfactants did not meet all the requirements of this category.
At the October 2002 EMC meeting, it was proposed that the existing methylene blue active substances (MBAS) surface water quality aquatic life standard of 500 μg/l be removed and replaced with an aesthetic MBAS standard of 500 μg/l for water supply (WS) classified waters. Under this proposal the toxic constituents of MBAS would be covered under existing whole effluent toxicity (WET) testing. The EMC and RRC approved the changes to the MBAS standard.

Total Residual Chlorine (TRC):

15A NCAC 02B .0211

North Carolina amended the current action level chlorine standard of 17 μg/L TRC for non-trout waters. The amendment removed the action level status to require a 17 μg/L instream standard for all freshwaters of the State. Since 1991, the State has recommended and/or established chlorine effluent limits for all new or expanding dischargers. Permittees will be reviewed as a part of the permit renewal process for compliance with the TRC in-stream standard.

The EPA's 1985 criteria document recommended a chronic standard of 11 μg/L with TRC not to exceed 19 μg/L in freshwater. During 1986 North Carolina chose to recalculate the advised (1985) chlorine standard by removing some of the *Daphnia magnia* data that had been used by the EPA, and adding other *Daphnia magnia* data not used by the EPA. The comparison of the calculations appears below.

	North Carolina (μg/L)	EPA (μg/L)
Average LC_{50}	50.5	27.66
Final Acute Value (FAV)	55.9	28.0
Standard*	17	11

* Standard calculated by dividing the FAV by a Final Acute/Chronic Ratio of 3.345.

In 1990, the EPA approved the Total Residual Chlorine calculation and resulting standard of 17 μg/L.

The removal of the "action level" status from the TRC standard was brought before the EMC and RRC which approved the changes for the Triennial Review.

Cyanide

15A NCAC 02B .0211

North Carolina's current cyanide standard for freshwaters is 5.0 μg/L and is implemented as total cyanide. This standard is based on EPA's 1976 "Red Book" chronic value of 5.0 μg free cyanide/L. In reviewing available data and EPA's most recent criteria for cyanide, it was determined that trout were the most sensitive species currently tested. Since North Carolina has a separate classification for trout waters, a separate standard was calculated for trout and non-trout waters. It was proposed, based on Staff's calculations, that an appropriate non-trout waters standard would be 11.0 μg/L of total cyanide in freshwaters.

The US Fish and Wildlife Service (USFWS) and the EPA raised concerns about the methodology that had been utilized to create the non-trout cyanide standard. According to the USFWS, recent research indicated that North Carolina possesses a number of warm-water species within its borders that are as sensitive to toxic pollution as the cold-water trout species. Therefore, the USFWS questioned whether the recalculation of the non-trout cyanide standard would be adequately protective of all of North Carolina's warm-water listed aquatic species, some of which have demonstrated sensitivities in toxicity tests with other contaminants equal to the rainbow trout. The Service suggested that for North Carolina to ensure that its cyanide standard is protective of all aquatic life within the State, it should retain a statewide standard of 5.0 μg/L, or perform the recalculation with warm-water sensitive species data.

After reviewing all pertinent information, the EMC determined that in order to ensure that North Carolina's cyanide standard remains fully protective of all aquatic life, the State would maintain the current standard, 5 μg total cyanide/L, for all surface freshwaters of the State, both trout and non-trout waters. However, the EMC allowed a modification of the rule language to allow for site-specific criteria to be developed. This allowance would be in accordance with The Recalculation Procedure in Appendix B of Appendix L in the Environmental Protection Agency's Water Standards Handbook.