



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029**

Ms. Jutta Schneider, Director
Water Planning Division
Virginia Department of Environmental Quality
1111 East Main Street, Suite 1400
Richmond, VA 23219

Dear Ms. Schneider:

The U.S. Environmental Protection Agency Region III (EPA) completed its review of Virginia's adoption of revised ammonia criteria for the protection of aquatic life, Water Quality Standards (WQS) regulations at 9 VAC 25-260-155. Virginia published the WQS revisions in the Virginia Register of Regulations on June 22, 2020. The Virginia Office of Attorney General certified the revisions as duly adopted pursuant to Virginia law in a letter dated July 29, 2020. EPA received this package on August 6, 2020.

Based on EPA's review of the submission and supporting documentation, EPA finds that the revised ammonia criteria adopted by Virginia are consistent with Clean Water Act (CWA) Section 303(c) and its implementing regulations at 40 CFR Part 131. The enclosure to this letter provides the rationale for our approval. There are also a number of new or revised provisions that EPA is not approving as part of this action, because EPA does not consider those provisions to be new or revised WQS subject to review under CWA Section 303(c).

Under Section 7(a)(2) of the Endangered Species Act (ESA), 16 U.S.C. §1536, EPA has an obligation to ensure that the Agency's approval of these modifications to the State's aquatic life WQS regulations will not jeopardize the continued existence of federally-listed threatened and endangered species and their critical habitat in Virginia. To fulfill this obligation, EPA initiated consultation with the U.S. Fish and Wildlife Service (FWS) and prepared a biological evaluation of the revised freshwater ammonia criteria for the protection of aquatic life and concluded that our approval is not likely to adversely affect listed species and their critical habitat. The FWS concurred with this conclusion on October 19, 2018. Following consultation, but prior to Virginia's submittal of the finalized revised ammonia criteria, additional freshwater Virginia species were federally listed as threatened or endangered, as well as some additional critical habitat. The FWS concurred with EPA's determination of not likely to adversely affect for these species and critical habitat, to which EPA self-certified on August 20, 2020. This concluded ESA consultation.



If you have any questions, please do not hesitate to contact me at 215-814-2737 or have your staff contact Gregory Voigt, Chief Standards & TMDL Section, at Voigt.Gregory@epa.gov, or 215-814-5737.

Sincerely,

Catherine A. Libertz, Director
Water Division

Enclosure

cc: John Kennedy, DEQ

Enclosure

Rationale for Action on Virginia's Revised
Water Quality Standards

9VAC25-260-155. Ammonia surface water quality criteria

Submitted on August 6, 2020

The Environmental Protection Agency's (EPA's) action addresses the revisions to the Virginia Water Quality Standards published in the Virginia Register of Regulations on June 22, 2020. The revised water quality standards (WQS) were submitted to EPA on August 6, 2020. This enclosure provides a summary of the revisions and EPA's approval action which include revisions that are approved for purposes of Clean Water Act (CWA) Section 303(c) and revisions for which EPA is taking no action under CWA Section 303(c).

1. Background for Clean Water Act and Water Quality Standards

Under the CWA Section 303 and federal implementing regulations at 40 CFR 131.4, States have the primary responsibility for reviewing, establishing, and revising WQS, which consist of the designated uses of a waterbody or waterbody segment, the water quality criteria necessary to protect those designated uses, and an antidegradation policy. This statutory framework allows States to work with local communities to adopt appropriate designated uses (40 CFR 131.10(a)) and to adopt criteria to protect those designated uses (40 CFR 131.11(a)). Each State must follow its legal procedures for adopting such standards (40 CFR 131.5) and submit a certification by the State's attorney general, or other appropriate legal authority within the State, that the WQS were duly adopted under State law (40 CFR 131.6(e)). CWA Section 303(c)(2)(B) of the CWA requires States to adopt water quality criteria for toxic pollutants listed pursuant to CWA Section 307(a)(1) for which the EPA has published criteria under CWA Section 304(a) where the discharge or presence of these toxics could reasonably be expected to interfere with the designated uses adopted by the State. In establishing criteria, States should establish numerical values based on 304(a) Guidance; or 304(a) Guidance modified to reflect site-specific conditions, or other scientifically defensible methods (40 CFR 131.11 (b)(1)). In addition, States should establish narrative criteria where numeric criteria cannot be determined or to supplement numeric criteria (see 40 CFR 131.11(b)(2)).

The Environmental Protection Agency (EPA) is required to review a State's new or revised WQS to ensure revisions to WQS are consistent with the CWA. The EPA determines whether a particular provision is a new or revised WQS after considering the following four questions: (1) Is it a legally binding provision adopted or established pursuant to State law? (2) Does the provision address designated uses, water quality criteria (narrative or numeric) to protect designated uses, and/or antidegradation requirements for waters of the United States? (3) Does the provision express or establish the desired condition (e.g., uses, criteria) or instream level of protection (e.g., antidegradation requirements) for waters of the United States immediately or mandate how it will be expressed or established for such waters in the future? (4) Does the provision establish a new WQS or revise an existing WQS? See EPA's What Is A New or Revised WQS Under CWA Section 303(c)(3) Frequently Asked Questions (USEPA 2012).

The EPA also considers the State's non-substantive administrative edits or editorial changes to be changes to WQS and therefore reviews and acts on them under CWA Section 303(c). While these edits and changes may not substantively change the meaning or intent of the existing WQS, the EPA believes it's reasonable to act on these edits and changes to ensure public transparency as to which provisions are applicable for CWA purposes. The EPA notes that the scope of its review and action on administrative edits or editorial changes extend only to the edits or changes themselves. The EPA is not re-opening or reconsidering the underlying WQS, which are the subject of the administrative edits or editorial changes.

2. Introduction to Virginia's Amended Ammonia Criteria

In 2013 EPA published national recommended ambient water quality criteria for the protection of aquatic life from the toxic effects of ammonia, a constituent of nitrogen pollution. Acute and chronic criteria were developed to protect organisms from both immediate effects, such as mortality, and longer-term effects on reproduction, growth and survival, respectively. EPA's 2013 CWA Section 304(a) Aquatic Life Ambient Water Quality Criteria for Ammonia recommendations – Freshwater (EPA's 2013 Ammonia Criteria) (USEPA2013) incorporate scientific views received on EPA's 2009 draft updated Ammonia criteria and supersede EPA's previously recommended 1999 ammonia criteria. EPA's 2013 Ammonia Criteria consider the latest freshwater toxicity information for ammonia, including toxicity studies for sensitive unionid mussels and gill breathing snails. Unionid mussels are much more sensitive to ammonia than the fish and invertebrates that were previously used to calculate the criteria. These new criteria are based on robust toxicity data available for 69 genera (acute) and 16 genera (chronic). The duration components of the 1999, 2009 and 2013 criteria remain the same - a one-hour average duration for the acute criterion and 30-day average duration for the chronic criterion. The frequency component for the acute and chronic criteria remains once in three years on average. EPA's 2013 Ammonia Criteria apply to all freshwaters for the protection of the aquatic community, including both freshwater mussels and snails.

Virginia has adopted amendments to the Virginia Water Quality Standards Regulation, 9 VAC 25-260-155, freshwater ammonia criteria for the protection of aquatic life (Virginia's Amended Ammonia Criteria) to be consistent with EPA's 2013 Ammonia Criteria. EPA's 2013 criteria recommendations are based on additional information regarding the toxicity of ammonia to freshwater unionid mussels. Virginia considers mussels to be ubiquitous in Virginia and likely to be present in any perennial waterbody and this is reflected in Virginia's Amended Ammonia Criteria. Acute and chronic criteria equations from EPA's 2013 Ammonia Criteria were adopted in their entirety, as were pH and temperature tables associated with each equation. Virginia's Amended Ammonia equations, and tables associated with each equation, are shown in Attachment 1 to the August 6, 2020 submittal.

EPA guidance allows for site specific options to calculate criteria by omitting mussel toxicity data to be used in waters where a demonstration has been made that mussels are absent. Virginia has also adopted site-specific options to calculate criteria omitting mussel toxicity data to be used in waters where a demonstration has been made that mussels are absent. Lastly, along with EPA's 2013 Ammonia Criteria, EPA published a *Flexibilities for States Applying EPA's Ammonia Criteria Recommendations* document (2013a). Some of the flexibilities that States may want to consider in adoption and application of EPA's 2013 Ammonia Criteria include the recalculation procedure for site-specific criteria derivation, variances, revisions to designated uses, dilution allowances, and compliance schedules. Virginia incorporated a Phased Implementation Program in its adoption of the amended criteria that include some of these flexibilities, which are described below.

3. Virginia's Amended Ammonia Surface Water Quality Criteria Regulations at Section 9 VAC 25-260-155 and EPA's Action Rationale

9VAC25-260-155 Subsection A.

Virginia added provisions to state that the majority of Virginia freshwaters are likely to contain, or have contained in the past, freshwater mussel species in the family Unionidae and contain early life stages of fish during most times of the year. Therefore, Virginia's Amended Ammonia Criteria presented in subsections B and C are designed to provide protection to these species and life stages. Additionally, in an instance where it can be adequately demonstrated that either freshwater mussels or early life stages of fish are not present in a

specific waterbody, potential options for alternate, site-specific criteria are presented in subsection D. Lastly Virginia added duration and frequency components for both the acute and chronic criteria.

EPA review: EPA's 2013 Ammonia Criteria consider the latest toxicity information for freshwater species, including unionid mussels. Where a State demonstrates that mussels are not present on a site-specific basis, the recalculation procedure may be used to remove the mussel species from the national criteria dataset to better represent the species present at the site. Additionally, Virginia's duration and frequency components are consistent with the EPA's 2013 Ammonia Criteria duration and frequency components. EPA approves Virginia's Subsection A amendments pursuant to CWA Section 303(c).

9VAC25-260-155 Subsection B.

Virginia revised its Acute Total Ammonia Nitrogen (mg N/L) Trout Absent and Trout Present tables based on Table 5a and 5b from EPA's 2013 Ammonia Criteria. Additionally, Virginia revised its trout present and absent acute criteria calculations using the acute criteria calculations in EPA's 2013 Ammonia Criteria.

EPA review: Virginia adopted EPA's new acute criteria equations in their entirety, as well as the pH and temperature tables associated with each equation. Virginia's amended acute criteria for total ammonia freshwaters with trout absent or present are consistent with EPA's 2013 Ammonia Criteria, therefore; EPA approves Virginia's Subsection B amendments pursuant to CWA Section 303(c).

9VAC25-260-155 Subsection C.

Virginia revised its Chronic Ammonia Freshwater Criteria Mussels and Early Life Stages of Fish Present Total Ammonia Nitrogen (mg N/L) table based on Table 6 from EPA's 2013 Ammonia Criteria. Additionally, Virginia revised its Chronic Criteria Concentration calculation using the chronic criteria calculations in EPA's 2013 Ammonia Criteria.

EPA review: Virginia adopted EPA's new chronic criteria equation in their entirety, as were pH and temperature table associated with the equation. Virginia's amended chronic criteria for total ammonia when freshwater mussels and early life stages of fish are present is consistent with EPA's 2013 national recommendations, therefore; EPA approves Virginia's Subsection C amendments pursuant to CWA Section 303(c).

9VAC25-260-155 Subsection D.

Virginia added this Section for site-specific considerations and alternate criteria. If it can be adequately demonstrated that freshwater mussels or early life stages of fish are not present at a site, then alternate site-specific criteria can be considered using the information provided in this subsection.

EPA review: In the case of ammonia, where a State demonstrates that mussels or early life stages of fish are not present on a site-specific basis, alternate equations may be used to better represent the species present at the site. Virginia added site-specific considerations and equations that are consistent with EPA's 2013 Ammonia Criteria recommendation therefore; EPA approves Virginia's subsection D amendments pursuant to CWA Section 303(c).

Please note that 9VAC25-260-155.D.1.d indicates that if the department determines there is no early life stages expected to be present "then the applicable ambient water quality criteria for ammonia...shall be calculated using the table in this subsection, or the formula for calculating the chronic criterion

concentration for ammonia when early life stages of fish are absent.” There is no table included in this subsection, however the formula for calculating the site-specific criteria is present. Virginia has indicated that the reference to a table is an error and will be corrected. As the equation is included and consistent with EPA recommendations, EPA is approving the regulation along with the formula. As there is no table that is part of this submission, and furthermore, the lack of table does not impact the desired condition or level of protection for these streams, EPA is not taking a 303(c) action on the phrase “the table in this subsection.” It will therefore not be applicable for CWA purposes.

9VAC25-260-155 Subsections E & F

No revisions were made to Virginia’s acute and chronic ammonia saltwater criteria, but with the addition of Subsection D. (Site-specific considerations and alternate criteria), the acute ammonia saltwater criteria which before this revision was Subsection D is now Subsection E, and the chronic ammonia saltwater criteria which before this revision was Subsection E is now Subsection F. These formatting revisions aid in the structure and readability of the State’s WQS. While EPA recognizes that these revisions do not make significant substantive changes, EPA is approving the revisions to ensure public transparency as to which provisions are effective for CWA purposes. EPA notes that its action on these non-substantive changes to previously approved WQS do not constitute action on the underlying previously approved WQS.

9VAC25-260-155 Subsection G

Virginia added Subsection G " Implementation of Freshwater Ammonia Criteria in subsections B and C through VPDES Permits issued pursuant to 9VAC25-31 - Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation.” These provisions provide for schedules for implementing the ammonia criteria in VPDES permits (9VAC25-260-155.G.1 and 2), authorization for, if appropriate, an extended schedule of compliance which exceeds the term of the VPDES permit and may include multiple permit cycles to achieve effluent limits based on the freshwater ammonia water quality criteria (9VAC25-260-155.G.3); and notes that a permittee may seek a site-specific modification or variance to the freshwater ammonia water quality criteria under 9VAC25-260-140.D, or 9VAC25-260-140.E as applicable.

EPA review: Virginia regulations at 9VAC25-260-155.G.1 and 2 do not modify the State’s water quality standards; therefore EPA is not acting on these revisions under CWA Section 303(c). EPA notes that water quality criteria are applicable for CWA purposes once they have been approved by EPA and VPDES permit limits must derive from and comply with any applicable WQS.

Virginia regulation at 9VAC25-260-155.G.3 authorizes the use of extended schedules of compliance for water quality-based effluent limits for ammonia in VPDES permits. Such an authorizing provision is a WQS and EPA is approving pursuant to CWA Section 303(c).

Finally, Virginia added the provision that a permit may seek a site-specific modification or variance to the freshwater ammonia water quality criteria under 9VAC25-260-140.D, or 9VAC25-260-140.E as applicable. EPA does not consider this provision to be a water quality standard subject to review under CWA Section 303(c) and therefore EPA is not taking a 303(c) action on this provision. Note that, with the exception of site-specific modifications developed in accordance with 9VAC25-260-155.D, site-specific modifications and variances are subject to public participation requirements at federal regulation at 40 CFR 131.20(b) and subject to EPA review under CWA 303(c).

References

U.S. Environmental Protection Agency (EPA). (2012). What is a New or Revised Water Quality Standard Under CWA 303(C)(3)? Frequently Asked Questions. EPA Publication No. 820F12017 OCTOBER 2012. <https://www.epa.gov/sites/production/files/2014-11/documents/cwa303faq.pdf>

U.S. Environmental Protection Agency (EPA). (2013). Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater. EPA-822-R-13001.

U.S. Environmental Protection Agency (EPA). (2013a). Flexibilities for States Applying EPA's Ammonia Criteria Recommendations. EPA-820-F-13-001.