Virginia Department of Planning and Budget

Economic Impact Analysis

9 VAC 25-260 Water Quality Standards
Department of Environmental Quality
Town Hall Action/Stage: 5637 / 9438
November 19, 2021

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with § 2.2-4007.04 of the Code of Virginia (Code) and Executive Order 14 (as amended, July 16, 2018). The analysis presented below represents DPB's best estimate of these economic impacts.[1]

Summary of the Proposed Amendments to Regulation

The State Water Control Board (Board) proposes to amend 9 VAC 25-260 *Water Quality Standards* (regulation) to update numerical and narrative criteria, use designations, and other policies based on current scientific information. The proposed changes include: (i) adding freshwater aluminum criteria, (ii) requiring the use of the Copper Biotic Ligand Model, (iii) updating 20 human health criteria for 10 parameters of water quality, (iv) increasing the acreage for Submerged Aquatic Vegetation and Water Clarity for five Chesapeake Bay segments, (v) applying lake nutrient criteria to Lake Mooney, (vi) adding a special standard that would limit the quantity of the filamentous algae in certain sections of the Shenandoah river, and (vii) modifying trout waters designation and public water supply designation, and adjusting temperature criteria for waters stocked with trout by the Virginia Department of Wildlife Resources in the winter.

[1] Code § 2.2-4007.04 requires that such economic impact analyses determine the public benefits and costs of the proposed amendments. Further the analysis should include but not be limited to: (1) the projected number of businesses or other entities to whom the proposed regulatory action would apply, (2) the identity of any localities and types of businesses or other entities particularly affected, (3) the projected number of persons and employment positions to be affected, (4) the projected costs to affected businesses or entities to implement or comply with the regulation, and (5) the impact on the use and value of private property.

Background

The proposed amendments were developed as part of a triennial review of the regulation, which is mandated by federal regulation and state law. The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.[2] The federal regulations at 40 CFR 131 authorize requirements and procedures for developing, reviewing, revising and approving water quality standards by the states as authorized by section 303(c) of the CWA.[3] 40 CFR 131.20 specifies that states shall hold public hearings at least once every three years for the purpose of reviewing the state's water quality standards, and adopting, modifying or canceling such standards, as appropriate.

The State Water Control Law (*Code of Virginia,* §62.1-44.2 *et seq*.) is intended to protect and restore the quality of state waters, safeguard clean waters from pollution, prevent and reduce pollution, and promote water conservation.[4] Specifically, §62.1-44.15(3a) requires the Board to establish standards of quality, and also modify, amend or cancel any such standards or policies; that section mirrors 40 CFR 131 in requiring that the Board conduct a triennial review of water quality standards, including holding public hearings.

The water quality standards contained in this regulation are used in setting Virginia Pollutant Discharge Elimination System (VPDES) permit limits and for evaluating the waters of the Commonwealth so that "impaired waters" can be addressed as per the Clean Water Act and Code of Virginia § 62.1-44.19:7.[5] In keeping with the legal mandate, the Board convened a Regulatory Advisory Panel with representatives from various stakeholders to review the current standards and proposed changes.[6] The proposed changes reflect a combination of updated scientific data, newer standards adopted by the U.S. Environmental Protection Agency, information on current conditions as obtained by the Department of Environmental Quality

[2] See https://www.epa.gov/laws-regulations/summary-clean-water-act for the history of the Clean Water Act
[3] See https://www.law.cornell.edu/cfr/text/40/part-131.
[4] See https://law.lis.virginia.gov/vacode/title62.1/chapter3.1/.
[5] See https://www.epa.gov/tmdl/statute-and-regulations-addressing-impaired-waters-and-tmdls for information on the requirements under the Clean Water Act and https://law.lis.virginia.gov/vacode/title62.1/chapter3.1/section62.1-44.19:7 for the requirements in Virginia statute.
[6] See https://townhall.virginia.gov/L/GetFile.cfm?File=Meeting\103\32600\Minutes_DEQ_32600_v1.pdf and https://townhall.virginia.gov/L/GetFile.cfm?File=Meeting\103\32678\Minutes_DEQ_32678_v1.pdf for minutes from the Regulatory Advisory Panel's two meetings, held in June 2021.

(DEQ), and input from members of the advisory panel.[7] The most significant proposed changes are summarized below.

I. In 9VAC25-260-140, numerical water quality criteria (upper limits) for parameters (various chemicals) that are measured to assess toxicity would be changed as follows:

(i) Add freshwater aluminum criteria for the protection of aquatic life according to the 2018 EPA nationally recommended criteria.[8] Aluminum is currently not included among the parameters used to assess water toxicity.

(ii) Require that the freshwater criteria for copper be calculated using the EPA 2007 Biotic Ligand Model (BLM) in sites where the Board has determined that a sufficient dataset of input parameters is available. The BLM is currently offered as an alternative to sites that have sufficient data; the proposed change would effectively require those sites to use the BLM. Places where the Board has determined that a sufficient dataset is not available will be allowed to continue using the current method of calculating the criteria.[9] A change from the current hardness-based criteria (and, therefore permit limits) to the BLM-based criteria would not always result in more stringent criteria (and permit limits). Less stringent criteria could result from using the BLM depending on the site-specific water chemistry of the receiving waterbody.

(iii) Update criteria for toxicity with respect to human health for the following 10 parameters to reflect updated exposure factors recommended by EPA in 2011: antimony, 2,3,7,8-tetrachlorodibenzo-p-dioxin, nickel, n-nitrosodimethylamine, n-nitrosodiphenylamine, n-nitrosodi-n-propylamine, total PCBs, selenium, thallium, and zinc. The current criteria are based on outdated exposure factors; the new criteria are derived using the latest exposure factors.[10]

Lastly, the Board proposes to make a number of smaller changes such as correcting

[7] The Board also received a number of public comments, reported on pages 16-23 of the Agency Background Document. See https://townhall.virginia.gov/l/GetFile.cfm?File=103\5637\9438\AgencyStatement_DEQ_9438_v1.pdf.
[8] See https://www.epa.gov/wqc/2018-final-aquatic-life-criteria-aluminum-freshwater.
[9] See https://www.epa.gov/wqs-tech/copper-biotic-ligand-model.
[10] "Exposure factors" are benchmark values for variables like drinking water consumption, consumption of fish, etc. that are used to conduct risk assessments for human exposure to potentially toxic chemicals in the environment. See https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252.

identification numbers for some chemicals, and removing Bis (chloromethyl) Ether since it naturally degrades rapidly in water.

II. Submerged Aquatic Vegetation (SAV) and Water Clarity acreages for five Chesapeake Bay segments would be increased to match the most recent recommendations from the Chesapeake Bay Program (9VAC25-260-185.B.) The current criteria are based on outdated water quality models, and the proposed increases would make the rationale for these segments consistent with other parts of the Bay. The criteria are used to determine shallow water SAV use as a designated use, and as such increasing the acreage increases the area that can be protected for such use from the impacts of nutrients and suspended sediments.

III. Lake Mooney, which was recently constructed as a water supply reservoir in Stafford County, would be added to the list of man-made lakes and reservoirs in the state that are subject to nutrient criteria in order to protect aquatic life and recreational designated uses (9 VAC 25-260-187.) DEQ staff proposed this since Lake Mooney is proposed to be designated as a public water source.

IV. The Board proposes to add a benthic chlorophyll-a threshold as a special standard (9 VAC 25-260-310) to protect recreational use from persistent, nuisance filamentous algae in certain main-stem sections of the North Fork Shenandoah River, South Fork Shenandoah River, and Shenandoah River.[11] Specifically, the proposed language states, "In the wadeable portions of the mainstem sections of the Shenandoah River, North Fork Shenandoah River, and South Fork Shenandoah River listed below, a determination of persistent nuisance filamentous algae impeding the recreation use should be made when exceedances of the specified benthic chlorophyll-a concentration thresholds occur in more than one recreation season (May 1 to October 31) in three years. 'Wadeable' constitutes a stream that can be crossed and sampled safely during a given sampling event occurring within the recreation season." A determination of persistent nuisance filamentous algae could lead to the water being designated as "impaired," which would then require further interventions from DEQ to address the causes and mitigate the algal blooms by implementing Total Maximum Daily Loads (TMDL).

The Board proposes to remove special standard 'y' pertaining to ammonia criteria for

[11] This does not include Harmful Algal Blooms, which are monitored by the Virginia Department of Health. See https://www.vdh.virginia.gov/waterborne-hazards-control/algal-bloom-surveillance-map/.

freshwater tidal tributaries of the Potomac River as it is superseded by freshwater ammonia criteria that became effective in 2020.

V. The Board also proposes to update the designations for various sections of river basins, either to change trout waters or public water supply designations or to add or correct class designations, as well as to make the location descriptions more precise (9 VAC 25-260-360 through -540.) For some class III waters that are stocked with trout during the winter by the Department of Wildlife Resources, the proposed changes would add temperature criteria to ensure the water is not allowed to get too warm for the trout. In general, these changes would serve to ensure that the regulation is accurate and that the appropriate criteria are applied to assess water bodies based on the correct classification.

Estimated Benefits and Costs

The proposed amendments broadly benefit the public by ensuring that the numerical toxics criteria that protect aquatic life and human health are updated based on better scientific information. The accurate classification of water bodies would further ensure that public water sources for household consumption and water bodies used purely for recreational purposes are correctly assessed and protected for such use. DEQ and the Commonwealth would benefit from more accurate and scientifically defensible permit limits, assessments and clean-up plans (TMDLs) in case of legal proceedings brought either by the regulated community or by conservation groups.

However, criteria that become more stringent may result in increased costs to the regulated community. Since these criteria are used to grant permits under VPDES, current permit holders as well as regulants who are assessed for a new permit may face more stringent effluent limits or be subject to monitoring requirements, or may face higher indirect costs by having to process or filter their effluents to meet the new criteria. As mentioned previously, adopting the copper BLM-based criteria may lead to less stringent criteria and permit limits depending on the site-specific water chemistry; thus some current and future VPDES permit holders with copper limits may benefit from this change.

Businesses and Other Entities Affected

All VPDES permit holders with pollutants in their discharge that are being updated with the proposed amendments may be impacted by the proposed changes. Data shared by DEQ show

that there are currently 816 VPDES individual permit holders with effluent limits. With regard to the copper BLM, there are 146 VPDES permittees in the Commonwealth that currently have copper effluent limits and/or copper monitoring requirements in their discharge permit. Of these 146 facilities, 135 discharge to freshwater and may be directly affected by the modified language for the copper BLM. Municipally owned wastewater treatment plants comprise 38 percent of these permittees, while industrial facilities make up a majority of the rest.[12] There are other permittees that currently do not have copper limits but may be required to have them when their permits are renewed due to the proposed changes.

Similarly, 161 permittees may be affected by the proposed changes to the human health criteria. These permittees currently have either a permit limit derived from at least one of the existing criteria or monitoring requirements. Municipally-owned wastewater treatment plants comprise 34 percent of these permittees, while industrial facilities make up a majority of the rest. There are other permittees that currently do not have permit limits derived from these criteria, but they may be required to have them when their permits are renewed if the proposed amendments become effective.

Permittees that have aluminum in their effluent and that discharge into freshwater may be affected by the addition of the aluminum criteria. The number of potentially affected permittees is unknown since aluminum would be added as a new parameter.

The proposal to add a benthic chlorophyll-a threshold as a special standard for wadeable portions of the mainstem sections of the Shenandoah River, North Fork Shenandoah River, and South Fork Shenandoah River could result in new costs to the state or to regulants if impairments are identified in the future that necessitate clean-up plans. Due to the geographic nature of the intervention, entities located in the localities that encompass these river section are likely to bear a disproportionate material impact: Augusta, Clark, Lee, Page, Rockingham, Shenandoah and Warren counties, and the towns of Luray and Shenandoah.

The Code of Virginia requires DPB to assess whether an adverse impact may result from the proposed regulation.[13] An adverse impact is indicated if there is any increase in net cost or

[12] Other individual permit holders that are not private businesses include the Department of Corrections, the Virginia Department of Transportation, and the U.S. Army, Navy and Marine Corps.

[13] Pursuant to Code § 2.2-4007.04(D): In the event this economic impact analysis reveals that the proposed regulation would have an adverse economic impact on businesses or would impose a significant adverse economic

reduction in net revenue for any entity, even if the benefits exceed the costs for all entities combined. As noted above, the more stringent criteria would lead to higher direct or indirect costs to VPDES permit applicants who would be subject to effluent limits or monitoring criteria. Thus, an adverse impact is indicated.

Small Businesses[14] Affected:[15]

The proposed amendments do not appear to adversely affect small businesses. The proposed amendments affect private businesses that have VPDES individual permits. Based on a list of permit holders provided by DEQ, private businesses with individual permits with effluent limits for copper or any of the parameters that have human health criteria are all large corporations in the energy, chemicals, steel, railway, shipbuilding, agricultural processing, paper milling, and heavy machinery sectors.[16] Thus, an adverse economic impact is not being indicated for small businesses.[17]

Localities[18] Affected[19]

Some localities that operate wastewater treatment plants may be affected by the proposed changes to the criteria for copper, aluminum, or the ten parameters with human health criteria. Consequently, an adverse economic impact[20] on these localities is indicated because they may

impact on a locality, business, or entity particularly affected, the Department of Planning and Budget shall advise the Joint Commission on Administrative Rules, the House Committee on Appropriations, and the Senate Committee on Finance. Statute does not define "adverse impact," state whether only Virginia entities should be considered, nor indicate whether an adverse impact results from regulatory requirements mandated by legislation.

[14] Pursuant to § 2.2-4007.04 of the Code of Virginia, small business is defined as "a business entity, including its affiliates, that (i) is independently owned and operated and (ii) employs fewer than 500 full-time employees or has gross annual sales of less than $6 million."

[15] If the proposed regulatory action may have an adverse effect on small businesses, Code § 2.2-4007.04 requires that such economic impact analyses include: (1) an identification and estimate of the number of small businesses subject to the proposed regulation, (2) the projected reporting, recordkeeping, and other administrative costs required for small businesses to comply with the proposed regulation, including the type of professional skills necessary for preparing required reports and other documents, (3) a statement of the probable effect of the proposed regulation on affected small businesses, and (4) a description of any less intrusive or less costly alternative methods of achieving the purpose of the proposed regulation. Additionally, pursuant to Code § 2.2-4007.1, if there is a finding that a proposed regulation may have an adverse impact on small business, the Joint Commission on Administrative Rules shall be notified.

[16] Data source: DEQ

[17] Adverse impact is indicated if there is any increase in net cost or reduction in net revenue for any entity, even if the benefits exceed the costs for all entities combined.

[18] "Locality" can refer to either local governments or the locations in the Commonwealth where the activities relevant to the regulatory change are most likely to occur.

[19] § 2.2-4007.04 defines "particularly affected" as bearing disproportionate material impact.

[20] Adverse impact is indicated if there is any increase in net cost or reduction in net revenue for any entity, even if the benefits exceed the costs for all entities combined.

face higher costs to monitor or mitigate the pollutant content in the treatment plants' effluent due to the more stringent numeric criteria. However, which localities will be affected by these changes is as yet unknown.

Due to the location-specific nature of adopting a benthic chlorophyll-a threshold as a special standard, entities in the localities that encompass wadeable portions of the mainstem sections of the Shenandoah River, North Fork Shenandoah River, and South Fork Shenandoah River are likely to bear a disproportionate material impact: Augusta, Clark, Lee, Page, Rockingham, Shenandoah and Warren counties, and the towns of Luray and Shenandoah. Consequently, an adverse economic impact[21] on these counties and towns is indicated because entities in those localities, including municipal wastewater treatment facilities and industrial facilities, may be subject to TMDLs if these sections of the river are found to be impaired.

Lastly, Stafford County, which contains Lake Mooney, would also be affected by the proposed amendments, but only in the sense that it would contain a water body that is assessed for nutrient content.

Projected Impact on Employment

The proposed amendments do not appear to affect total employment. It is unlikely that the proposed amendments would affect employment in wastewater treatment or water quality management.

Effects on the Use and Value of Private Property

As discussed above, the proposed changes in numerical criteria may increase costs for some private businesses. Consequently, the value of these firms may be modestly reduced. The proposed amendments do not affect real estate development costs.

[21] Adverse impact is indicated if there is any increase in net cost or reduction in net revenue for any entity, even if the benefits exceed the costs for all entities combined.