



# Virginia Department of Planning and Budget **Economic Impact Analysis**

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**9 VAC 25-260 Water Quality Standards**  
**Department of Environmental Quality**  
**Town Hall Action/Stage: 6384 / 10400**  
August 29, 2024

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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 19. The analysis presented below represents DPB’s best estimate of the potential economic impacts as of the date of this analysis.<sup>1</sup>

## **Summary of the Proposed Amendments to Regulation**

In response to a petition for rulemaking,<sup>2</sup> the State Water Control Board (Board) proposes to adopt site-specific selenium criteria for the protection of freshwater aquatic life in four streams which are tributaries to Knox Creek in Buchanan County, Virginia.

## **Background**

This action results from a 2023 petition for rulemaking, which requested the Board to amend this regulation to incorporate site-specific selenium criteria for the protection of freshwater aquatic life in four streams which are tributaries to Knox Creek in Buchanan County, Virginia. The specific streams which are the focus of this rulemaking are:

- Race Fork and tributaries
- Pounding Mill Creek and tributaries
- Right Fork of Lester Fork and tributaries
- Abners Fork and tributaries

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<sup>1</sup> 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.

<sup>2</sup> <https://townhall.virginia.gov/l/viewpetition.cfm?petitionid=385>

The site-specific selenium criteria for consideration under this rulemaking reflect the Environmental Protection Agency's (EPA) recommended selenium water quality criterion for protection of aquatic life, and would apply to the streams noted above in the Knox Creek watershed. The EPA's recommended criterion was first published on July 13, 2016 and updated in 2021.<sup>3</sup> EPA's recommended freshwater criterion is a chronic criterion expressed in terms of both fish tissue concentration (egg/ovary, whole body, and muscle) and two different water concentrations. The criterion elements are hierarchical, with fish tissue values taking precedence over other values should sufficient fish tissue data be available.

According to the EPA,<sup>4</sup> selenium is a naturally occurring element present in sedimentary rocks, shales, coal, and phosphate deposits and soils. Selenium can be released into water by natural sources via weathering and by anthropogenic sources, such as surface mining, coal-fired power plants, and irrigated agriculture. Notably, in this case, the petitioner is a coal mining operator. Selenium is a nutritionally essential element for animals in small amounts, but toxic at higher concentrations. Selenium bioaccumulates in the aquatic food chain and chronic exposure in fish and aquatic invertebrates can cause reproductive impairments (e.g., larval deformity or mortality). Selenium can also adversely affect juvenile growth and mortality. Furthermore, selenium is toxic to waterfowl and other birds that consume aquatic organisms that contain excessive levels of selenium.

### **Estimated Benefits and Costs**

Generally, water quality standards are used to determine if a water body is impaired and, if so, to develop a Total Maximum Daily Load (TMDL). If the TMDL is exceeded, then cleanup actions are enforced through the Virginia Pollutant Discharge Elimination System (VPDES) permit. It is possible that standards pertinent to operations of the permittee may require additional capital or operating costs to control their discharge, particularly where the numerical criteria are more stringent. Therefore, whether the proposed standard is more or less stringent than the existing standard is critical to assessing its economic impact. However, it is not known whether the proposed, site-specific criteria will be more or less stringent than the current selenium aquatic life criteria contained in the regulation.

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<sup>3</sup> Table 1 on page xv in <https://www.epa.gov/system/files/documents/2021-08/selenium-freshwater2016-2021-revision.pdf>.

<sup>4</sup> <https://www.epa.gov/wqc/aquatic-life-criterion-selenium>

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According to DEQ, the criterion based on fish tissue concentration is not comparable to the current standard, which is based only on the water column. While DEQ states the new criteria being adopted that are based on water column appear more stringent compared to the current water column standard, this may not matter because the proposed standard is hierarchical. As a result, the fish tissue criteria would take precedence over the water column criterion so long as fish tissue is available. In other words, the proposed revision of the water column criteria may not apply so long as fish tissue is available. Hence, whether the proposed change would be more or less stringent is not known. Consequently, whether the petitioner would face any restrictions through its VPDES permit and any potential costs is also not known. It is however worth noting that this regulatory action is being taken as a direct response to the petitioner's request for these specific criteria.

Aside from the potential compliance costs depending on the stringency, facilities with VPDES permits in the Knox Creek watershed subject to this site-specific selenium criteria would incur a cost to collect fish tissue data to demonstrate compliance with the criteria. Fish tissue samples are expected to cost approximately \$4,000 per watershed sample according to a firm representing the petitioner.

Additionally, this is EPA's first aquatic life criterion that uses fish tissue as a direct expression of the recommended criterion, as well as DEQ's first adoption of such criteria. Accordingly, implementation of these criteria would be substantially different from established Clean Water Act water quality programs, including the VPDES program and the water quality assessment program. Thus, DEQ and Virginia Energy, which is the VPDES enforcement agency for the mining operators, would have an opportunity to experiment with this type of criteria and learn from it.

Furthermore, DEQ asserts that the primary advantage to the public is that the proposed selenium criteria are based on updated scientific information to protect aquatic life, which should help in developing accurate and scientifically defensible permit limits, assessments, and clean-up plans to ensure protection of the designated uses.

## **Businesses and Other Entities Affected**

Due to the limited geographic application of the proposed criteria, DEQ anticipates this to only affect one surface coal mining facility. That facility, which is owned by the petitioner, may be disproportionately affected.

Additionally, it is anticipated Virginia Energy will be particularly affected by these regulations as related to discharge permits. Virginia Energy is the agency charged with implementing the VPDES program for coal mining operations in Virginia. Accordingly, they would have primary responsibility for implementing the amended criteria. DEQ reports that that agency has been actively involved in this rulemaking and is aware of the proposed criteria and the need to establish implementation procedures for incorporating the proposed criteria into their VPDES program.

The Code of Virginia requires DPB to assess whether an adverse impact may result from the proposed regulation.<sup>5</sup> An adverse impact is indicated if there is any increase in net cost or reduction in net benefit for any entity, even if the benefits exceed the costs for all entities combined.<sup>6</sup> As noted above, the use of fish tissue criteria is expected to introduce \$4,000 cost to the petitioner for collection of fish samples. However, given that the proposed standard may be less stringent and consequently may reduce compliance costs to offset the sample collection costs, and the fact that the petitioner asked for this standard, no adverse impact is indicated.

### **Small Businesses<sup>7</sup> Affected:<sup>8</sup>**

The proposed amendments do not appear to adversely affect small businesses.

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<sup>5</sup> 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 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.

<sup>6</sup> 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. As a result, DPB has adopted a definition of adverse impact that assesses changes in net costs and benefits for each affected Virginia entity that directly results from discretionary changes to the regulation.

<sup>7</sup> 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.”

<sup>8</sup> 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

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### **Localities<sup>9</sup> Affected<sup>10</sup>**

The proposed selenium criteria based on fish tissue samples apply specifically to Knox Creek, which is located in Buchanan County. However, the proposed amendments do not introduce costs for that county.

### **Projected Impact on Employment**

There is not enough information available to determine whether the proposed amendments would affect total employment by a meaningful amount and in any certain direction.

### **Effects on the Use and Value of Private Property**

Similarly, there is not enough information available to determine whether the proposed amendments would affect the use and value of private property by a meaningful amount and in any certain direction. No impact on real estate development costs is expected.

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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.

<sup>9</sup> “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.

<sup>10</sup> § 2.2-4007.04 defines “particularly affected” as bearing disproportionate material impact.