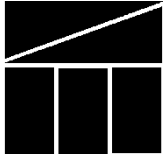


Adverse impact notification sent to Joint Commission on Administrative Rules, House Committee on Appropriations, and Senate Committee on Finance (COV § 2.2-4007.04.C): Yes  Not Needed

If/when this economic impact analysis (EIA) is published in the *Virginia Register of Regulations*, notification will be sent to each member of the General Assembly (COV § 2.2-4007.04.B).



## Virginia Department of Planning and Budget Economic Impact Analysis

---

**9 VAC 25-260 Water Quality Standards**  
**Department of Environmental Quality**  
**Town Hall Action/Stage: 3171/5343**  
September 19, 2018

---

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

The State Water Control Board (Board) proposes to adopt the most recent water quality standards recommended by the United States Environmental Protection Agency (EPA) for cadmium criteria for protection of aquatic life; 94 chemical pollutant criteria, and the bacteria criteria and assessment methodology for protection of human health.<sup>1</sup>

### **Result of Analysis**

There is insufficient data to accurately compare the magnitude of the benefits versus the costs. Detailed analysis of the benefits and costs are in the next section.

### **Estimated Economic Impact**

This regulation establishes water quality standards for surface waters of the Commonwealth. Criteria are based on the maximum acceptable amount of pollutants, that directly affect aquatic life and /or human health, that can be discharged into receiving waters and not exceed criteria protective of designated uses. Federal and state mandates in the Clean Water

---

<sup>1</sup> This action originally included the most recent ammonia criteria for protection of aquatic life recommended by EPA at the proposed stage. However, Chapters 510 and 511 of the 2018 Acts of Assembly directed the board not to adopt the United States Environmental Protection Agency's (EPA's) ammonia criteria unless the board included a phased implementation program that is consistent with the federal Clean Water Act of 1972 (Clean Water Act) for certain funding and timing considerations. Consequently, the Board decoupled the most recent ammonia criteria from this action.

Act at §303(c), 40 CFR 131 and the Code of Virginia in §62.1-44.15(3a) require that these water quality standards be evaluated every three years. In addition, §303(a) of the Clean Water Act requires the EPA to develop and publish water quality criteria that reflect the latest scientific knowledge. EPA recommendations are purely based on protection of aquatic life and human health and do not reflect consideration of economic impacts or the technological feasibility of meeting pollutant concentrations in ambient water. These criteria are not rules, nor do they automatically become part of a state's water quality standards. States may adopt the criteria that the EPA publishes, modify the EPA's criteria to reflect site-specific conditions, or adopt different criteria based on other scientifically defensible methods. The EPA must approve any new water quality standards adopted by a state before they can be used for Clean Water Act purposes. Should a state fail to update its standards, the EPA may adopt and enforce water quality criteria on behalf of the state. In this action, the Board proposes to adopt the most recent water quality standards recommended by the EPA. Once adopted, these criteria become the basis of establishing permit limits and Total Maximum Daily Loads (TMDLs).

### ***Freshwater & Saltwater Cadmium Criteria for Protection of Aquatic Life***

In 2016, the EPA updated its 2001 recommended cadmium aquatic life ambient water quality criteria in order to reflect the newest toxicity data for 75 new species and 49 new genera. The Board proposes to adopt the EPA's recommended standard for cadmium. There are four aquatic life criteria (i.e. acute and chronic limits for freshwater and saltwater). The proposed cadmium criteria are more stringent than the current limits by a factor between 1.1 times and 2.2 times. Criteria that are more stringent may mean additional treatment is needed to remove more cadmium before discharging effluent into surface waters. Those permitted treatment plants with monitoring requirements in their permit may also be affected if their discharges have the potential to exceed the proposed criteria.

According to DEQ, there are 24 active discharge permits with either numeric cadmium limits or monitoring requirements. Of these, 10 have effluent limits and 14 have monitoring requirements but no limits. Monitoring requirements without discharge limits typically result from a permit review using a "Reasonable Potential Analysis" that indicates the facility may have a particular parameter in its effluent, ergo the monitoring requirement. The monitoring data is used in subsequent permit reissuances to determine if discharge limits should be included.

Given that the cadmium freshwater criteria are becoming more stringent it is assumed facilities with only monitoring requirements may be the most likely to be affected.

Furthermore, the most likely impact expected is for industrial dischargers. However, DEQ has no cost information on retrofits for these types of facilities and each would be unique due to the type of industry, wastewater characteristics and treatment technology used. Thus, there are no available estimates for the potential costs at this time. As far as TMDL costs, there is one aquatic life use impairment near Lake Anna with cadmium listed as the impairment cause, but it has yet to be put on the priority list and as such an active TMDL has yet to be developed. A more stringent cadmium standard may add additional waters to the impaired waters list but DEQ does not know if that is the case at this time because such determinations are site specific. On the other hand, more stringent cadmium criteria based on latest scientific information will likely provide better protection for aquatic life.

### ***Water Quality Criteria for Protection of Human Health***

In 2015, the EPA published water quality criteria for the protection of human health for 94 chemical pollutants. The revisions stemmed from the latest scientific information and the EPA policies, including updated body weight, drinking water consumption rate, fish consumption rate, bioaccumulation factors, health toxicity values, and relative source contributions. Each pollutant has two criteria (i.e. one for public water supply and one for all other waters) for a total of 188 individual criteria concentrations. 57 of these criteria would become less stringent, 127 would become more stringent, 2 would be unchanged, and 2 are new additions and do not have criteria in the current regulation.

Though 127 criteria that are more stringent have the potential to increase compliance costs, according to DEQ, the majority of the human health criteria pollutants tend to be rather exotic compounds and discharger specific. Thus, the potential compliance cost to dischargers is unknown at this time. In addition, it is noted that many of the human health criteria toxins are not monitored routinely unless there is a known or suspected problem. DEQ does not believe there will be additional TMDL designations because of this change but that expectation is uncertain.

Due to anti-backsliding rules, existing permit limits cannot be made less stringent. Thus, 57 less stringent criteria are unlikely to have an effect on current permit limits. However, potential new sources discharging one of these pollutants will be subject to less stringent limits

and may avoid installing treatment systems. Thus, new sources may realize some cost savings in potential treatment costs.

127 more stringent and 2 new human health criteria have the potential to help reduce many types of illnesses including cancer. However, some of these rather exotic pollutants may not be present in the Commonwealth's surface waters. If this is the case, no immediate significant impact is likely to be realized, but if any discharge containing these chemicals is discovered, health risks originating from the drinking water and fish consumption may be reduced and the source may have to incur some additional compliance costs.

In short, very few limits are based on human health criteria so no significant impact from the amendments is expected. However, given the large number of human health criteria amendments, it is difficult to determine with certainty at this time what the cost savings or expenses may be.

### ***Bacteria Criteria for Protection of Human Health***

The Board proposes to revise the bacteria criteria and assessment methodology for protection of human health. E. coli and Enterococci concentrations are used as bacteria indicators for the presence of illness inducing pathogens in fresh- and saltwater respectively.

The aim of the proposed changes is to align Virginia's methodology and criteria with those recommended by EPA, which are expressed in terms of a statistical threshold value (replacing the single sample maximum) and a geometric mean. The current assessment methodology for the single sample maximum allows no more than 10% of the total samples to exceed the criteria over the assessment period that is typically a six-year monitoring database. The proposed statistical threshold value is a similar measure utilized by EPA. Under the proposed regulation, no more than 10% of the total samples may exceed the statistical threshold value using all monitoring data collected up to a 90-day period. Bacteria criteria are also expressed in terms of a geometric mean, which can only be calculated under the current water quality standards using at least 4 observations taken within a 30-day period. The geometric mean standard is a "never-to-be-exceeded" value. Its exceedance puts the water body on the impaired waters list. The intent of the amendment is to switch to a 90-day assessment period to enable the use of more monitoring data, which will maximize the number of monitoring stations that are assessed against both geometric mean and statistical threshold value criteria. The proposed

amendment will adopt 2012 EPA recommended statistical threshold values for E. coli and Enterococci concentrations and are higher than the current values used for the single sample maximum. The geometric mean concentrations remain unchanged.

The rationale behind the amendment is the proposed bacteria criteria represent the most recent scientific basis for criteria designed to protect primary contact recreational uses. Also, the Federal BEACH Act of 2000 requires that, not later than 36 months after the date of publication by the EPA of new or revised water quality criteria for pathogens or pathogen indicators, each state having coastal recreation waters shall adopt and submit to the EPA new or revised water quality standards for the coastal recreation waters of the state for all pathogens and pathogen indicators to which the new or revised water quality criteria are applicable. In this case, the most recent EPA criteria were published in 2012.

One of the consequences resulting from these changes is that more waters may be assessed as impaired for the recreational use. Exceedances of the bacteria criteria are the leading cause of TMDL designations; about 80% of existing impairments are due to high bacteria concentrations. There are currently 441 bacteria impairments that are waiting for a development of a TMDL. It is not expected amendments to bacteria criteria will affect dischargers as end-of-pipe limits for bacteria are set at the criterion. However, the number of TMDLs that must be developed may increase.

### **Businesses and Entities Affected**

According to DEQ, there are 24 active discharge permits with either numeric cadmium limits or monitoring requirements. The number of potentially effected facilities due to the amended human health criteria and bacteria criteria is not known. The proposed changes may also affect new and expanded point sources as well as nonpoint sources in the future.

### **Localities Particularly Affected**

The proposed changes apply statewide.

### **Projected Impact on Employment**

The net impact on employment is not known. A facility requiring an upgrade or monitoring under the proposed regulations will have to hire labor to accomplish those goals. However, increased costs may also discourage expansion or the building of new plants reducing demand for labor.

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

The proposed changes have the potential to affect private property prices through improvements in environmental quality. However, such effects are usually contingent upon noticeable improvements. Since the magnitude of likely effects on environment is not known, no conclusive statements can be made about the effect on the value of private property.

**Real Estate Development Costs**

The proposed amendments do not directly affect real estate development costs.

**Small Businesses:****Definition**

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.”

**Costs and Other Effects**

Some of the industrial plants that discharge to surface waters of the Commonwealth will be associated with small businesses. The costs and other effects on them are the same as discussed above.

**Alternative Method that Minimizes Adverse Impact**

There is no known alternative method that would minimize the adverse impact and accomplish the same goals.

**Adverse Impacts:****Businesses:**

The adverse impact on businesses is the additional compliance costs discussed above.

**Localities:**

No significant adverse impact on localities is expected.

**Other Entities:**

The proposed amendments will not adversely affect other entities.

## Legal Mandates

**General:** The Department of Planning and Budget 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 Number 17 (2014). Code § 2.2-4007.04 requires that such economic impact analyses determine the public benefits and costs of the proposed amendments. Further the report 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.

**Adverse impacts:** Pursuant to Code § 2.2-4007.04(C): 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 within the 45-day period.

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.

000