



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

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### **9 VAC 25-401 – Sewage Treatment in the Dulles Watershed Area**

#### **Department of Environmental Quality**

August 6, 2003

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The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 2.2-4007.G of the Administrative Process Act and Executive Order Number 21 (02). Section 2.2-4007.G requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. The analysis presented below represents DPB's best estimate of these economic impacts.

### **Summary of the Proposed Regulation**

The General Assembly mandates in §62.1-44.15 of the Code of Virginia that the State Water Control Board establish standards of quality and policies for state waters consistent with the standards set forth in Chapter 3.1 of Title 62.1 of the Code of Virginia. §62.1-44.15 of the Code of Virginia also gives the State Water Control Board the authority to establish policies and programs for effective area-wide or basin-wide water quality control and management. It requires the State Water Control Board to consider the feasibility of combined sewage treatment plants when developing these policies and programs.

The proposed regulation replaces an existing regulation that deals with waste treatment and water quality management in the Dulles watershed area. The existing regulation is being repealed and a new regulation is being adopted because of the extensive editing and rewriting required to update and clarify the regulation. While most of the requirements of the proposed regulation are not significantly different from the requirements of the existing regulation, the

proposed regulation modifies the effluent limits on discharges from regional sewage treatment plants. It relaxes the maximum effluent limit for TSS (total suspended solids), modifies the total nitrogen discharge requirements, and deletes effluent limits for BOD (biochemical oxygen demand), MBAS (methyl blue activated substance), and viruses. Modifications to the effluent limits apart, the proposed regulation does not differ significantly from the existing regulation. Some of the other minor changes include additional language that clarifies the intent of the existing regulation, the inclusion of two exceptions to the requirements of the regulation, the removal of language and requirements that are outdated, redundant, or unnecessary, and the reorganization of the regulation in an effort to improve its clarity.

### **Estimated Economic Impact**

The proposed regulation is intended to replace an existing regulation dealing with waste treatment and water quality management in the Dulles watershed area. The existing regulation, which was promulgated in 1975, is being repealed. The existing regulation is organized and written along the lines of a planning document. Due to the amount of interpretation required regarding its intent and instruction, the Department of Environmental Quality (DEQ) has found the regulation difficult to implement in its current form. Moreover, the effluent limits for discharges from regional sewage treatment plants are outdated and need to be updated to reflect current technology and water quality management techniques. The editing and rewriting required in order to improve the clarity of the regulation and update the effluent limits was so extensive that DEQ decided to repeal the existing regulation and adopt the proposed regulation.

The proposed regulation differs significantly from the existing regulation only in the maximum effluent limits on surface water discharges from regional sewage treatment plants. It modifies the effluent limits established in the existing regulation to reflect the current state of wastewater treatment and water quality management. Some of the effluent limits established in the existing regulation are either unachievable and/or not possible to measure accurately at the sewage treatment plant (STP) level. For example, the existing regulation establishes effluent limits for viruses and TSS (total suspended solids) of 0.0 mg/l. However, according to DEQ, it is not possible for STPs to accurately measure and hence, achieve these effluent limits.

The proposed regulation adopts all but one of the effluent limits prescribed in the wastewater treatment and water quality management policy for the Occoquan watershed (9 VAC

25-410). According to DEQ, the Occoquan policy has worked well in protecting the Occoquan reservoir drinking water supply for the last 25 years and the effluent limits prescribed by it are adequate to protect water quality in the Dulles watershed area. Effluent limits for MBAS (methyl blue activated substance), a parameter used to measure surfactants such as soaps and detergents, are not included in the proposed regulation even though they appear in the Occoquan policy. DEQ believes that improved wastewater treatment technologies and the phosphate ban since 1988 have made this requirement unnecessary.

The effluent limits prescribed in the proposed regulation differ from existing policy in the following ways.

- The maximum effluent limit for TSS in the proposed regulation is 1.0 mg/l as compared to 0.0 mg/l in the existing regulation. DEQ believes that a TSS effluent limit of 0.0 mg/l is unachievable for STPs and a TSS effluent limit of 1.0 mg/l will be adequate to protect the water quality in the Dulles watershed area.
- The proposed regulation modifies the nitrogen requirement. It prescribes a TKN (unoxidized nitrogen) effluent limit of 1.0 mg/l. It requires owners of regional sewage treatment plants to monitor nitrate concentrations in the vicinity of the Fairfax County Water Authority intake on the Potomac River. In the event that nitrate concentrations at the intake exceed 5.0 mg/l, owners of the STPs are required to take corrective action. The proposed regulation also requires owners of the regional sewage treatment plants to implement an in-stream monitoring program to assess the impact of their discharges on downstream water quality. Under the existing regulation, an effluent limit of 1.0 mg/l was established for total nitrogen, not just unoxidized nitrogen, and there were no monitoring requirements for owners of regional STPs. DEQ believes that a total nitrogen effluent limit of 1.0 mg/l is unachievable for STPs and the effluent limit for TKN coupled with the monitoring requirements are a more effective and appropriate way of controlling the amount of nitrogen being discharged.
- The proposed regulation does not include an effluent limit for BOD (biochemical oxygen demand). It is not possible for an STP to accurately measure BOD of 1.0 mg/l (the BOD limit in the existing regulation). DEQ believes that a COD (chemical oxygen demand) effluent limit of 10.0 mg/l is equivalent to having a BOD limit of 1.0 mg/l and that removing the BOD limit will not have a significant impact on water quality.

- The proposed regulation does not include an MBAS effluent limit. MBAS is a parameter used to measure pollutants such as soaps and detergents. As improved wastewater treatment technologies and the phosphate ban in Virginia since 1988 have largely dealt with the problem of detergents being discharged, DEQ believes that MBAS effluent limits are no longer necessary. Under the existing regulation, the MBAS limit is set at 0.1 mg/l.
- The proposed regulation does not include effluent limits for viruses. The existing regulation requires a virus effluent limit of 0.0 mg/l. However, DEQ believes the virus effluent limit to be unachievable for sewage treatment plants due to the uncertainty and inaccuracies associated with measuring it.

In most cases, the proposed regulation actually relaxes the effluent limits to be met by regional sewage treatment plants while not significantly increasing the risk to water quality in the Dulles watershed area. However, the regulation does impose additional monitoring requirements on the owners of these STPs. Rather than meeting an effluent limit for total nitrogen, owners of regional sewage treatment plants will be required to meet an effluent limit for TKN and implement in-stream and nitrate monitoring programs. DEQ believes that a TKN effluent limit of 1.0 mg/l coupled with the monitoring requirements will cost STPs significantly less than trying to comply with a total nitrogen limit of 1.0 mg/l. It is not possible to quantify the exact amount of the cost saving to STPs as it will vary depending on the size and type of program the STP and the water authority develop.

Currently, there are no regional sewage treatment plants that discharge into the Dulles watershed area. The Loudon county regional sewage treatment plant is currently under construction and will be subject to these requirements once it becomes operational. The proposed regulation allows for the construction of another regional sewage treatment plant under the authority of the city of Leesburg, but no such STP is currently under construction.

In addition to modifications to the effluent limits, the proposed regulation also includes language that clarifies the intent of the existing regulation. For example, the proposed regulation prohibits the establishment of new STPs that discharge into the Dulles watershed area other than two regional sewage treatment plants, one under the authority of the city of Leesburg and the other under the authority of Loudon County. While the existing regulation did not specifically prohibit the setting up of new STPs, it did not authorize any new plants other than the two

regional sewage treatment plants. The proposed regulation also includes other changes that improve the clarity of the proposed regulation compared to the existing regulation such as clearly identifying the watersheds subject to the regulation.

The proposed regulation allows for exceptions from these requirements in two cases: one for existing STPs that discharge into the Dulles watershed area and cannot hook up to a regional sewage treatment plant and the other for failing septic drain field systems at existing facilities such as residential homes, industrial and commercial operations, and public facilities when it can be demonstrated that it is not feasible to connect to a publicly owned sewage treatment plant and that there is no feasible alternative except to discharge into the watershed. While the existing regulation did not authorize the setting of new STPs that discharge into the Dulles watershed area, it allowed existing STPs to continue operating. The exception clause in the proposed regulation has been added in order to allow these STPs to continue operating. Currently, there are three STPs that were set up before January 1975 and that discharge into the Dulles area watershed.

The proposed regulation also removes language and requirements that are outdated, redundant, or unnecessary. The existing regulation was adopted before Virginia promulgated the sewerage regulations. Thus, aspects of the existing regulation that dealt with the design, construction, and operation of STPs and pump stations that are now included in the Sewage Collection and Treatment regulations have been removed from the proposed regulation. Other changes include deleting language in the existing regulation that provides non-regulatory background discussion and staff recommendations and leaving out language in the existing regulation that is outdated and no longer applicable such as the section establishing an interim plan for the Dulles watershed area.

The proposed regulation is reorganized compared to the existing regulation in an effort to improve its clarity. The existing regulation is organized and written along the lines of a planning document. This has led to problems in the interpretation and implementation of the regulation. The proposed regulation is divided into five distinct sections and uses more clear and concise regulatory language.

The proposed regulation is likely to have a net positive economic impact. By deleting or modifying effluent limits not possible for STPs to meet, the proposed regulation is likely to

produce economic benefits for regional sewage treatment plants discharging into the Dulles area watershed. Specifically, modifying the nitrogen requirement from meeting a total nitrogen effluent limit of 1.0 mg/l to meeting a TKN effluent limit of 1.0 mg/l and an in-stream and nitrate monitoring requirement is likely to produce significant cost savings for regional sewage treatment plants. Moreover, to the extent that modifying the effluent limits for discharge, updating the regulation, and improving its clarity provides for better implementation of the regulation and for better water quality management in the Dulles watershed area, the proposed regulation will have a positive economic impact.

### **Businesses and Entities Affected**

The proposed is likely to affect regional sewage treatment plants that discharge into the Dulles area watershed. By updating the effluent requirements to reflect current technology and water management practices, the proposed regulation is likely to produce economic benefits for regional sewage treatment plants. Specifically, modifying the nitrogen requirement is likely to produce significant cost savings for these plants. Moreover, modifying the effluent limits for discharge, updating the regulation, and improving its clarity is likely to lead to better implementation of the regulation and provide for better water quality management in the Dulles watershed area and produce economic benefits for all businesses and entities, not just STPs, operating in the affected area.

### **Localities Particularly Affected**

The proposed regulation will affect localities that have surface waters within the Dulles watershed area. These include the counties of Arlington, Loudon, and Fairfax, the cities of Fairfax and Falls Church, and the towns of Leesburg, Vienna, and Herndon.

### **Projected Impact on Employment**

The proposed regulation is not likely to have a significant impact on employment in Virginia.

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

To the extent that that modifying the effluent limits for discharge, updating the regulation, and improving its clarity provides for better implementation of the regulation and for

better water quality management in the Dulles watershed area, the proposed regulation will have a net positive economic impact on the value of property in the affected area.