

Department of Legislative Services  
Maryland General Assembly  
2023 Session

FISCAL AND POLICY NOTE  
First Reader - Revised

Senate Bill 512 (Senator Lam)  
Education, Energy, and the Environment

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**Drinking Water - Legionella Pneumophila Bacterium - Minimizing Growth and Transmission**

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This bill requires a water supplier to (1) maintain a detectable residual disinfectant level of chlorine in the water distribution system and (2) at frequent and regular intervals, conduct sampling and analysis of residual disinfectant concentrations to determine the residual disinfectant level of chlorine at all points in the distribution system. The bill also establishes notice, sampling, and analysis requirements that apply when water distribution system disruptions occur. The Maryland Department of the Environment (MDE) is authorized to adopt regulations to establish additional requirements. MDE must develop and publish a best practices guide to reduce the risk of contracting disease caused by *Legionella pneumophila* (*L. pneumophila*). Existing penalties apply to violations of the bill; any penalties collected under the bill must be distributed to a special fund to be used for specified enforcement, education, and research activities.

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**Fiscal Summary**

**State Effect:** General fund expenditures for MDE increase, likely significantly, beginning in FY 2024. General fund expenditures for the Maryland Department of Health (MDH) may also increase, as discussed below. State expenditures (multiple fund types) increase beginning in FY 2024 for affected State agencies to comply with the bill's sampling, analysis, and notice requirements. The application of existing penalty provisions is not anticipated to materially affect special fund revenues (and corresponding expenditures).

**Local Effect:** Local expenditures may increase, potentially significantly for at least some jurisdictions, beginning in FY 2024 to comply with the bill's sampling, analysis, and notice requirements. Local revenues are not directly affected.

**Small Business Effect:** Potential meaningful.

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## Analysis

### Bill Summary:

#### *Required Levels of Detectable Residual Disinfectant, Sampling, and Analysis*

A water supplier must maintain a detectable residual disinfectant level of at least 0.5 milligrams per liter (mg/L) of chlorine, not to exceed the maximum residual disinfectant level (MRDL) set by the U.S. Environmental Protection Agency (EPA), in the water distribution system. Additionally, a water supplier must, at frequent and regular intervals, conduct sampling and analysis of residual disinfectant concentrations to determine the residual disinfectant level of chlorine at all points in the distribution system. MDE may adopt regulations to require (1) additional disinfectant or sampling requirements for public water systems to minimize the growth and transmission of *L. pneumophila* and (2) the monitoring of public water systems during planned and unplanned disruptions.

#### *Planned and Unplanned Disruptions – Sampling, Analysis, and Notice Requirements*

As soon as practicable, but no later than four hours after a water supplier becomes aware of a water distribution system disruption that may result in increased levels of *L. pneumophila* in the distribution system, a water supplier must conduct water sampling and analysis for *L. pneumophila* bacterium and residual disinfectant levels of chlorine.

At least 30 days before a *planned* disruption, a water supplier must provide notice to all residential, commercial, and institutional customers and residents served by the public water system and are located within the service area. For an *unplanned* disruption that may result in increased levels of *L. pneumophila* in the water distribution system, a water supplier must provide notice to those entities as soon as practicable but no later than four hours after a water supplier becomes aware of the disruption. The required notice must include specified information, including (1) specific details describing the disruption; (2) identification of homes, neighborhoods, and areas of the community that are at elevated risk from the disruption, as specified; (3) information on *L. pneumophila* risks and other pathogen risks, as specified; and (4) measures consumers can take to reduce or eliminate exposure to the *L. pneumophila* bacterium, as specified.

#### *Best Practices Guide*

MDE must develop and publish a best practices guide to reduce the risk of contracting disease caused by *L. pneumophila*. In developing the guide, MDE must consult with MDH, the Consumer Protection Division in the Office of the Attorney General (OAG), and relevant stakeholders, as specified.

### *Penalties Collected Under the Bill*

Existing penalty provisions apply to violations of the bill. Any penalties collected pursuant to the bill must be distributed to a special fund and used only to support (1) education on minimizing *L. pneumophila* and related disease for the general public, water utility operators, building and facility owners, and health care professionals; (2) ongoing statewide research relating to *L. pneumophila*; and (3) enforcing the bill's provisions.

### **Current Law:**

#### *Federal Safe Drinking Water Act and State Implementation*

MDE is responsible for the primary enforcement (primacy) of the federal Safe Drinking Water Act (SDWA) in Maryland. This means MDE is charged with ensuring that the water quality and quantity at all public water systems meet the needs of the public and are in compliance with federal and State regulations. According to MDE's [Safe Drinking Water Act Annual Compliance Report for Calendar Year 2021](#) to EPA, routine compliance activities include regular on-site inspections of water systems to identify any sanitary defects in the systems, technical assistance, and a permitting process that helps ensure that systems obtain the best possible source of water. Maryland regulates 3,253 public water systems (461 community water systems, 550 nontransient noncommunity water systems, and 2,242 transient noncommunity water systems).

According to MDE, the MRDL under SDWA for chlorine and chloramines (another type of chemical disinfectant) is based on running monthly averages of samples take in the distribution system, which are computed quarterly. Residual disinfectant levels cannot exceed the MDRL. The MRDL for chlorine is 4.0 mg/L, but suppliers may temporarily increase residual disinfectant levels of chlorine or chloramine to address specific microbiological contamination problems, such as distribution line breaks, stormwater runoff events, source water contamination, or cross-connections.

MDE also notes that under SDWA, there are three types of approved chemical disinfectants that water suppliers may use: chlorine, chloramines, and chlorine dioxide.

#### *Routine Monitoring and Sampling*

Public water systems are required to sample and monitor for a variety of contaminants on a routine basis depending on the population served, source type, and historical monitoring data of the water system. Generally, the larger the population served by a water system, the more frequent the monitoring and reporting requirements. Violations can occur when contaminants are found at levels exceeding the federally established maximum

contaminant level, for failure to monitor and/or report as required, for failure to use required treatment techniques, or for failure to notify the public under certain circumstances.

### *Notice Requirements for Drinking Water Violations, Generally*

A water supplier must give notice to MDE and people served by the water system and give written notice to noncollegiate educational institutions, public schools, family child care homes, and child care centers when the water system (1) fails to comply with an applicable maximum contaminant level, treatment technique requirement, or testing procedure prescribed by a drinking water regulation or fails to perform required monitoring; (2) is subject to a variance granted for an inability to meet a maximum contaminant level or an exemption; (3) fails to comply with the requirements set by a variance or exemption; or (4) has concentration levels of an unregulated contaminant for which the State may require notice due to the risk of public health.

MDE is also in the process of promulgating related regulations to establish guidelines and requirements for public water systems when there are outages, flooded wells, and flooded springs. Among other things, the regulations and an anticipated guidance manual will (1) provide instructions to water systems on when and how to issue and lift a boil water advisory in response to an outage or flooded well or spring; (2) require a water supplier to notify MDE when an outage or flooded well or spring occurs; (3) establish related disinfection procedures and standards; and (4) establish related water quality sampling standards that will dictate when a boil water advisory may be lifted.

### *Applicable Penalties*

Various penalties apply to violations of Maryland's drinking water laws. In addition to any other remedies available at law, there is a graduated system for assessing administrative penalties for violations of drinking water provisions for public water systems. The maximum administrative penalty that may be imposed is based on the population of the area being served by the water supplier.

A water supplier serving a population of more than 10,000 is subject to a penalty of up to \$1,000 per day but not exceeding \$25,000 total for each violation. A water supplier serving a population of 3,301 to 10,000 is subject to a penalty of up to \$500 per day but not exceeding \$12,500 total for each violation. A water supplier serving a population of 501 to 3,300 is subject to a penalty of up to \$250 per day but not exceeding \$6,250 total for each violation. The penalty that may be imposed on a water supplier serving a population of 500 or less is up to \$100 per day but not exceeding \$5,000 total for each violation. MDE shall assess a penalty only after giving consideration to nine criteria, such as the willfulness

of the violation, the actual harm to environment or human health, and the extent to which the current violation is a part of a recurrent pattern committed by the violator.

All penalties collected under Title 9, Subtitle 4 of the Environment Article, which governs drinking water, are paid into the Maryland Clean Water Fund.

### *Legionella Pneumophila Bacterium*

State statute is silent regarding Legionnaires' disease and the *L. pneumophila* bacterium. Further, according to MDE, EPA does not regulate Legionnaires' disease under SDWA. EPA recently issued a final rulemaking decision not to include *L. pneumophila* in the revised Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems. EPA concluded the expense of the considered monitoring is not warranted given the limited utility of the data. However, EPA is currently examining opportunities to enhance protection against *L. pneumophila* through revisions to the suite of Microbial and Disinfection Byproduct rules.

MDH Regulations establish mandatory reporting for any cases of legionellosis (a respiratory disease caused by the *L. pneumophila* bacterium). Health care providers and laboratories must report any cases immediately.

### **State/Local/Small Business Effect:**

#### *Maryland Department of the Environment*

MDE advises that general fund expenditures increase by approximately \$1.0 million annually beginning in fiscal 2024 to hire 10 full-time regular employees (4 natural resources planners, 5 regulatory and compliance engineers, and 1 regulatory and compliance engineer supervisor) and 2 full-time contractual natural resources planners to (1) track water sampling results and analyses and reports of system disruptions; (2) handle enforcement; (3) manage the design review of chlorine treatment installations; (4) increase oversight for operator certification changes; (5) research and draft the *L. pneumophila* prevention guidance document (in consultation with MDH, OAG's Consumer Protection Division, and relevant stakeholders); (6) increase technical assistance to assist water systems in complying with the bill's requirements; and (7) generally implement and enforce the bill. MDE's estimate is based on the following information and assumptions:

- the bill's notice and sampling requirements affect thousands of water utilities (there are 33 known large water utilities and more than 3,000 known small water utilities in the State); and

- approximately 1,000 non-community water systems need to install a chlorine feed, and an estimated 200 water systems need to install a chemical disinfectant system, in order to meet the bill's minimum chlorine residual disinfectant level standard.

Given the large number of affected water suppliers, the Department of Legislative Services (DLS) concurs that the bill establishes substantial new responsibilities for MDE and that general fund expenditures increase significantly for MDE to hire staff to implement and enforce the bill. However, without actual experience under the bill, a reliable estimate of the increase in MDE's costs – primarily costs for staff – cannot be made at this time. DLS anticipates, however, that general fund expenditures for MDE increase, likely significantly, beginning in fiscal 2024 to hire staff.

The application of existing penalty provisions is not anticipated to materially affect special fund revenues (and corresponding special fund expenditures). To the extent sufficient penalty revenue is available to offset some portion of MDE's costs to enforce the bill, the need for general funds decreases.

#### *Office of the Attorney General*

OAG indicates that it needs to hire a part-time outreach coordinator to implement the bill, but it did not provide any details to justify the need for additional permanent staff. Since MDE is primarily responsible for developing the best practices guide, it is assumed that OAH can consult with MDE using existing budgeted resources.

#### *Maryland Department of Health*

MDH's Laboratories Administration provides analytical support services for State agencies and program offices throughout the State and is the primary laboratory in the State that conducts water testing for MDE and local health departments. In information provided regarding related legislation introduced during the 2022 session, MDE indicated that very few laboratories in the State have the capability to analyze for *L. pneumophila* and generally only test for *L. pneumophila* in emergency conditions. The Laboratories Administration advises that to the extent it receives a significant number of additional water samples to test under the bill, general fund expenditures for MDH increase by approximately \$251,800 in fiscal 2024 and by at least \$237,100 annually thereafter to hire two public health laboratory scientists and purchase additional equipment.

It is assumed that MDH can consult with MDE to develop the best practices guide using existing budgeted resources.

## *Effect on the State, Local Governments, and Small Businesses as Water Suppliers*

The bill establishes several new requirements for water suppliers in the State, including the requirement to maintain a certain residual disinfectant level of chlorine in the distribution system, conduct water sampling and analysis of residual disinfectant concentrations at frequent and regular intervals, conduct water sampling and analysis of *L. pneumophila* and residual disinfectant levels of chlorine when water distribution system disruptions occur, and provide notice to various entities when such disruptions occur. These requirements likely result in increased expenditures, which may be significant for at least some water suppliers, beginning in fiscal 2024.

The costs to comply with the residual disinfectant levels of chlorine are likely most significant for water supply systems that currently do not use chemical disinfectants or that uses a non-chlorine chemical disinfectant. According to MDE, there are 200 water systems in the State that do not use chemical disinfectants, and expenditures for these systems increase to engineer, design, and install a chemical treatment system and to certify operators. MDE also advises that there are approximately 1,000 non-community water systems that need to install a chlorine feed for system disinfection; many of these affected water supply systems are operated by small businesses.

In general, water supply systems can be owned by a variety of entities, including the federal government, State agencies, local governments, private entities, and entities with mixed ownership. Ultimately, any costs incurred by water suppliers will depend on the size of their water distribution systems, the number of planned and unplanned disruptions that occur, the extent to which the bill's requirements go beyond what water suppliers are already doing, whether water suppliers use chemical disinfection, and if the chemical disinfectant used is chlorine.

A limited survey of State and local government agencies gleaned the following information:

- Many water suppliers already meet the required detectable residual disinfectant level of at least 0.5 mg/L of chlorine.
- The City of Salisbury estimates that it needs to hire one additional employee to conduct additional water sampling under the bill and that costs increase by \$82,600 in fiscal 2024 and by approximately \$50,000 annually thereafter.
- Baltimore City advises that its water filtration facilities maintain an average of 0.5 parts per million chlorine residual, but continuous monitoring indicates that there are fluctuations within sample sites (while still meeting EPA and MDE required levels of chlorine residuals overall). The city advises that if chlorine dosing is increased, the facilities may run the risk of exceeding regulatory compliance for certain disinfection by-products.

- The Maryland Environmental Service (MES), which owns and operates one public water system and operates several other water systems for the State, county, municipal, and private sector clients, advises that it already maintains or exceeds the detectable residual disinfectant level required under the bill and conducts regular sampling and analysis of its systems. However, MES notes that since “frequent and regular intervals” regarding sampling and analysis of residual disinfectant concentrations is undefined, it is difficult to determine if it needs to conduct additional sampling and analysis under the bill. MES notes that costs to test for chlorine vary depending on the size of the system, but any increase in costs for MES is anticipated to be minimal overall.

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### **Additional Information**

**Prior Introductions:** Similar legislation has not been introduced within the last three years.

**Designated Cross File:** None.

**Information Source(s):** Maryland Environmental Service; Baltimore City; Kent, Montgomery, and Worcester counties; City of Salisbury; towns of Bel Air and Leonardtown; Office of the Attorney General (Consumer Protection Division); Maryland Department of Health; Maryland Department of the Environment; Department of Legislative Services

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