

A Brief Overview of Public Drinking Water in Vermont

While most public drinking water systems provide safe drinking water, a small percentage (2-5%) struggle to meet health standards. Primary reasons are exceeding Maximum Contaminant Levels (MCLs) for radionuclides, arsenic, disinfection by-products, or bacteria (e.g. *E. coli*).

When significant deficiencies exist at public water systems (for example, treatment equipment, tanks, pumps or piping infrastructure posing unsanitary risks), operating permits have schedules of compliance that require upgrades before health standards are violated. Disinfection is employed in a proactive way to manage microbial risks in groundwater, and filtration and disinfection are both employed to manage microbial risks when surface water is used.

The key focus of the water supply program is to proactively prevent compliance problems from occurring in the first place. This “multi-barrier” approach is accomplished from source to tap by:

1. *Protecting key sources of drinking water (source permitting and source protection plans)*
2. *Requiring quality and quantity monitoring of drinking water*
3. *Certifying drinking water system operators*
4. *Permitting proper design and construction of drinking water systems*
5. *Permitting treatment to meet technical requirements*
6. *Performing sanitary survey inspections*
7. *Administering Operating Permits, which compel improvements as needed and are the ultimate enforceable document*
8. *Performing constant surveillance of monitoring data and operational requirements*
9. *Public notification: Assisting the water system to inform the public when issues arise*
10. *Providing extensive compliance and technical assistance and outreach to water systems*
11. *Developing technical, managerial, and financial capacity (capability) of water systems*

The Drinking Water and Groundwater Protection Division considers capacity development for existing and new public water systems to be the key to assuring long-term viability of these systems. This is especially critical for ensuring our municipal systems continue to provide us safe drinking water that is affordable, provides sanitation needs, fire protection, and downtown economic development that preserves our heritage and decreases sprawl that can adversely harm our working landscape. The Division is using asset management as the tool for system operators to identify the most critical parts of their systems for repair or replacement, and to develop a long-term plan to upgrade their infrastructure.

Currently the Vermont Chapter of the American Society of Civil Engineers has rated Vermont’s public drinking water infrastructure with a C-. While public health standards are met 98% of the time, this infrastructure is beyond its useful life for almost all systems. If not addressed, catastrophic failures could occur, and at the very least will be more expensive ones to fix than a planned repair or replacement.

For more information, consult the VT-DEC (Drinking Water and Groundwater Protection Division) triennial “Governor’s Report - Drinking Water Capacity.” The 2017 report can be found at this link: <https://dec.vermont.gov/sites/dec/files/dwgpu/capacitydev/pdf/Governors%20Report%202017%2011-14-2017.pdf>

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“Right to Know” Statutory and Regulatory Framework

The Vermont Department of Environmental Conservation (VT-DEC) has delegated authority (“primacy”) to administer the federal Safe Drinking Water Act (SDWA). Federal and state drinking water rules regulate public water systems, which are defined as systems that provide drinking water to at least 25 people or 15 service connections for at least 60 days per year. They include community systems and non-community systems such as businesses and schools not otherwise connected to community systems.

There are more than 1,400 active public water systems in Vermont. Public water systems can be publicly or privately owned. Most Vermont public water systems are very small. Only 32 serve more than 3,300 people, and 72% serve 500 or less.

The “right to know” provisions of the Safe Drinking Water Act emphasize water system accountability, public awareness and community involvement. As part of the “right to know” requirements, primacy states must prepare an annual Public Water System Compliance Report. The State of Vermont’s annual Public Water System Compliance Report for calendar year 2017 is available at the following link:

<https://dec.vermont.gov/sites/dec/files/dwgwp/DW/2017annualreport.pdf>

Federal and state law require each water system to notify its users when violations occur. In addition, each community public water system must issue annual Consumer Confidence Reports, giving citizens information to make their own health decisions and empowering them to participate in decision-making over drinking water issues.

Compliance/Violations/Enforcement

Despite proactive supervision of public water systems, compliance issues do occur. The DEC assesses compliance with federal and state rules on a daily, monthly, quarterly and annual basis, depending on the contaminant involved. This is done by reviewing reports and monitoring data. The SDWA regulations recognize three overarching categories of violations: (1) exceedances of maximum contaminant levels, (2) failure to implement treatment techniques, and (3) monitoring and reporting violations. The majority of violations are due to failure to monitor and report properly, and most are resolved with systems returning to compliance. Of the 767 notices of violations issued to Vermont public water systems in 2017, most (98%) were related to treatment techniques, monitoring and reporting.

Vermont’s Water Supply Rule (WSR) regulations incorporate the SDWA regulations by reference, and also contains state permitting and technical design and operational standards that EPA regulations do not address. DEC assesses compliance with state technical requirements, as well as federal operational requirements, each time a sanitary survey inspection is done and prior to issuance of an operating permit. Schedules of compliance are incorporated into the permit if needed to compel water system improvements, and notice to the users of the system is required to alert them to the deficiencies that need to be addressed.

When a human health risk occurs, the “right to know” law requires the water system to inform the public of the violation within 24 hours. The VT-DEC requires a Boil Water notice when microbial contamination occurs, or a Do Not Drink notice in response to a chemical contaminant that causes a human health threat. In either case, the goal is to notify the public before violations become serious health concerns. These instances, thankfully, are uncommon. In 2017, there were only 5 Do Not Drink

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notifications and 5 Boil Water notices due to *E. coli*. Each water system uses a combination of methods to notify its users of water system deficiencies, identified violations, or emergency situations. For example, a large system may use radio, website and TV announcements, while a smaller system may post notices on doors or use a telephone chain to notify its customers.

If necessary, DEC compels compliance through notices of alleged violation, and formal enforcement through orders, assurances of discontinuance, and other means of civil litigation.

Rural Challenges

One of the greatest challenges for the state's drinking water program is related to the very small water systems that do not have a full-time operator. These systems are faced with increasing complexity and costs related to regulatory requirements, as well as the need for basic infrastructure repairs and replacements. Many of Vermont's smaller systems lack a sufficient customer base among which to spread costs and cannot find volunteers to operate the systems or track regulatory compliance. The smaller systems typically serve rural communities, often composed of residential customers that are less able or willing to pay full-cost pricing for their water (compared to industrial and commercial customers) or afford consultants.

Unfortunately, as drinking water infrastructure continues to age and degrade, systems will struggle to comply with regulations and to meet their customers' expectations. Feeling pressure to keep rates low, many public water systems are not making the investments needed to properly maintain, repair, rehabilitate, and replace their assets. EPA estimates that Vermont needs to invest more than \$510 million in our public drinking water infrastructure in the next twenty years to ensure health, security, and well-being of our communities. Meanwhile, the public financing available to do this is limited.

DEC's Role

As described above, the Vermont Department of Environmental Conservation supports public drinking water systems by educating them on the regulations and technical standards, providing tools to help them comply, providing direct technical and compliance assistance, and providing low interest loans for planning and infrastructure investment.

It is recognized by the Public Water Supply program that money from utility reserves and public financing is not enough to address Vermont's drinking water infrastructure needs for our communities. Consequently, the program is using an Asset Management program approach on the community level.

An effective Asset Management program recognizes that system-wide upgrades must be undertaken in a prioritized way over a period of several years, so that it is done in a way that does not break the back of the taxpayer. Asset management is an approach that inventories all the physical assets of the system, looks at life-cycle costs of those assets, and examines their criticality to the system. This information is then used to develop an intelligent long-term plan and timeline for prioritizing improvements to a public water system.

Much of our communities' drinking water infrastructure is buried, and an "out of sight, out of mind" mentality can unfortunately develop. But it is of paramount importance that we do not take its services – safe drinking water, sanitation needs, economic development and fire protection – for granted.

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