



Annual Drinking Water Quality Report for Calendar Year 2022

SPRINGFIELD WATER AND SEWER COMMISSION



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- Joshua D. Schimmel, Executive Director

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The Board of Commissioners meets monthly. Please call 413-452-1300 for meeting dates and times or to obtain extra copies of this report.

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The Springfield Water and Sewer Commission provides this report to meet federal and state Safe Drinking Water Act Requirements.



Message from the Executive Director

Dear Customer,

The Springfield Water and Sewer Commission is pleased to share with you the 2022 Water Quality Report. This report summarizes the more than 52,000 water quality tests from the past year and provides information about the source of your drinking water, the filtration and treatment process, and other useful information.

You will also find an update on the construction of the new West Parish Filters Drinking Water Treatment Plant which will modernize our drinking water operations and address regulatory compliance issues (page 6). The new treatment plant is the cornerstone project of the Commission's Water and Wastewater Infrastructure Renewal Program - a portfolio of more than 20 capital projects that will replace end-of-life water infrastructure and improve system resiliency and reliability.

As stewards of our region's drinking water, the Commission takes great pride in delivering on our mission to provide essential services to our 250,000 customers in the Lower Pioneer Valley, which is why we are advancing this generational-scale reinvestment. These projects will help ensure we can reliably deliver on our mission to supply an uninterrupted supply of drinking water for generations to come.

While advancing design and construction of the new treatment plant, the Commission continues daily drinking water operations to monitor the watershed, filter and treat raw water from Cobble Mountain Reservoir, analyze water quality data, maintain the transmission and distribution system, and respond to water emergencies.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail. **This report is available online at www.waterandsewer.org/waterqualityreport.**


Joshua D. Schimmel
Executive Director

Protecting Your Water Source

Cobble Mountain Reservoir (Source ID 1281000-02S) and Borden Brook Reservoir (Source ID 1281000-04S) are the Commission's primary water supplies. The reservoirs are located in Blandford and Granville, Massachusetts and surrounded by 14,000 acres of protected forestland within the Little River Watershed. An untouched water supply surrounded by acres of pristine forestland and preserved from development is an important first step in the water treatment process and ensures a high-quality supply, from source to tap.

To protect your drinking water supply source the Commission maintains an active Watershed Management Program. As part of the program the Commission monitors for encroachment and potential sources of contamination, conducts maintenance of watershed infrastructure, including roads and culverts, and oversees other forest management activities to promote a healthy and resilient forest.

The Massachusetts Department of Environmental Protection (MassDEP) completed a Source Water Assessment that evaluates the susceptibility of public water supplies to contamination from surrounding land uses. A susceptibility ranking of **moderate** was assigned to the Commission's system using the information collected. Risks identified include residential land use, transportation rights of way, and agriculture. **The complete Source Water Assessment Program report is available by contacting the Commission at 413-452-1300 or at <https://www.mass.gov/doc/western-region-source-water-assessment-protection-swap-program-reports>.**

How We Treat Your Water

Water from Cobble Mountain Reservoir and Borden Brook Reservoir is filtered and treated at the West Parish Filters Water Treatment Plant in Westfield. After treatment, clean drinking water is delivered to retail customers in Springfield and Ludlow and wholesale customers in Agawam, East Longmeadow, and Longmeadow, at an annual average of 30 million gallons per day.

Modernizing Our Water System for the 21st Century

Safe, reliable drinking water is essential for daily life and public health. To ensure reliable water service for generations to come the Commission is building a new drinking water treatment plant. The new plant will address regulatory compliance for disinfection byproducts (DBPs), improve water quality, and replace end-of-life infrastructure.

2022 Update

In 2022 design of the new West Parish Filters Drinking Water Treatment Plant began. The engineering design firm was selected by the Commission to design the new plant, which will include a new treatment process, Dissolved Air Flotation (DAF), new filters, elimination of original slow sand filters, and new chemical feed systems.

By the end of 2022 the design was approaching 30% completion. The project remains on schedule, with construction expected to begin in 2024 following approval and permitting from Mass DEP.

Learn more: <https://waterandsewer.org/new-water-plant>
View a simulated fly-over: <https://bit.ly/3M6FTic>

New West Parish Filters Drinking Water Treatment Plant: Phase 1 Construction

The West Parish Filters Facility Improvements Plan began in 2015 and identified a multi-phase approach to replace aging infrastructure and meet current and future regulations.

Phase 1 of the upgrades at West Parish Filters includes construction of a new Clearwell and Backwash Pump Station. Construction started in 2021 and significant progress was made in 2022, including completion of the new clearwell structure (pictured right). Construction is expected to be completed in 2023.



A rendering of the new West Parish Filters Water Treatment Plant at the 30% design phase. (January 2023)

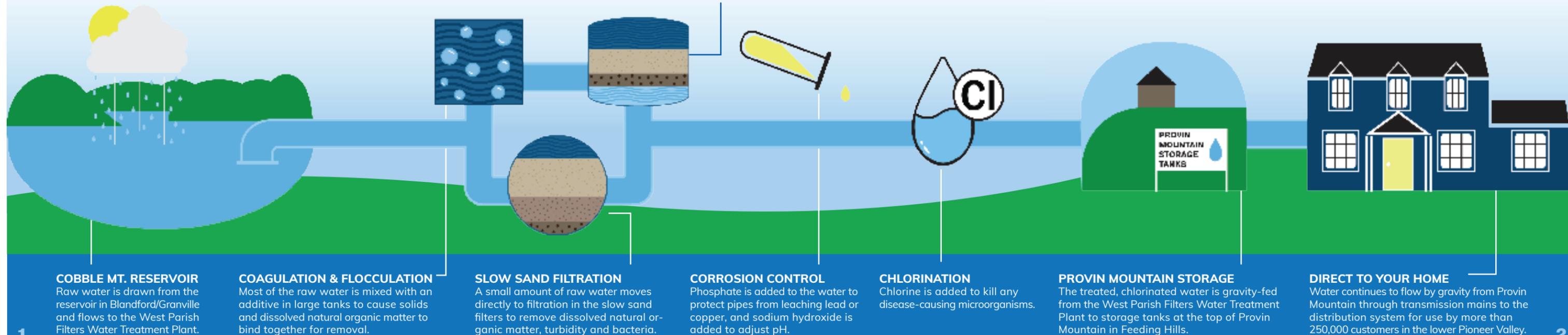


Phase 1 Construction: The new clearwell under construction at West Parish Filters Water Treatment Plant in October 2022.

Special Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the **Safe Drinking Water Hotline (1-800-426-4791)**.

How Your Water is Treated



2022 SWSC WATER QUALITY INFORMATION TABLE

The table below shows detections of regulated contaminants through water quality testing in 2022 (unless otherwise specified), and how they compare to state and federal standards. Approximately 52,000 water quality tests were analyzed using the Commission's own state-certified laboratory and private laboratories in 2022.

The testing results are from finished water in the distribution system. In 2022, sample results for two regulated contaminants exceeded regulatory limits. Information about this exceedance is also contained in this report.

PUBLIC WATER SUPPLY IDENTIFICATION #1281000

DISINFECTANTS	DATE	MRDLG	MRDL	HIGHEST QUARTERLY ANNUAL AVERAGE	RANGE DETECTED AT INDIVIDUAL SAMPLING SITES	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Residual Free Chlorine (ppm)	Daily	4.0	4.0	0.74	ND - 3.90	No	Water additive used to control microbes
BACTERIA	DATE	MCLG	MCL	HIGHEST DETECTED LEVEL	RANGE DETECTED AT INDIVIDUAL SAMPLING SITES	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Heterotrophic Plate Counts (HPC) ¹	Daily	N/A	TT	241	ND - 241 CFU/ml	No	HPC is an indicator method that measures a range of naturally - occurring bacteria in the environment.
INORGANICS	DATE	MCLG	MCL	HIGHEST DETECTED LEVEL	RANGE DETECTED AT INDIVIDUAL SAMPLING SITES	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Nitrate (ppm)	Yearly	10	10	0.0738	N/A	No	Erosion of natural deposits, runoff from fertilizer use
Barium (ppm)	Yearly	2	2	0.0064	N/A	No	Erosion of natural deposits
TURBIDITY *	DATE	MCLG	TT	HIGHEST SINGLE MEASUREMENT	LOWEST MONTHLY PERCENTAGE	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Rapid Sand Filtration ** (NTU)	Daily Compliance	N/A	1	0.641	N/A	No	Soil Runoff
Rapid Sand Filtration ** (NTU)	Monthly	N/A	TT: at least 95% of samples per month below 0.3	N/A	99%	No	
Slow Sand Filtration *** (NTU)	Daily Compliance	N/A	5	0.98	NA	No	
Slow Sand Filtration *** (NTU)	Monthly	N/A	TT: at least 95% of samples per month below 0.3	NA	100%	No	

¹ Heterotrophic Plate Count is not associated with health effects but is a method that measures the bacterial quality of water as an indicator of the adequacy of disinfection.

UNREGULATED**** 2022 Detections	DATE	ORSG/SMCL	MCL	HIGHEST SINGLE MEASUREMENT	RANGE DETECTED	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Sodium (ppm)	Yearly	ORSG = 20	None	13.5	N/A	No	Natural sources; runoff from use of de-icing compounds on roadways
Manganese (ppb)	Yearly	SMCL = 50 ORSG = 300	None	7.56	N/A	No	Erosion of natural deposits
Chloroform (ppb)	Yearly	ORSG = 70	None	9.33	N/A	No	By-product of drinking water chlorination
Bromodichloromethane (ppb)	Yearly	None Established	None	0.99	N/A	No	

FIFTH UNREGULATED CONTAMINANT MONITORING RULE (UCMR5)

As required by US Environmental Protection Agency (EPA), our water system has sampled for a series of unregulated contaminants. Unregulated contaminants are those that don't yet have a drinking water standard set by EPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a public health protection standard. The fifth Unregulated Contaminant Monitoring Rule (UCMR 5) was published on December 27, 2021, and requires sample collection for 30 chemical contaminants between 2023 and 2025.

The Commission completed first quarter sampling for UCMR5 in February 2023 and is pleased to report that there were no detections for any of the 30 contaminants tested, which included 29 PFAS* substances.

* Per- and polyfluoroalkyl substances (PFAS)

2022 SWSC WATER QUALITY INFORMATION TABLE (CONTINUED)

PUBLIC WATER SUPPLY IDENTIFICATION #1281000

DISINFECTION BY-PRODUCTS	DATE	MCLG	MCL	HIGHEST LRAA	RANGE DETECTED AT INDIVIDUAL SAMPLING SITES	VIOLATION	MAJOR SOURCES IN DRINKING WATER
TTHMs (ppb) (Total Trihalomethanes)	Quarterly	N/A	80	89	59-90	Yes	By-product of drinking water chlorination
HAA5 (ppb) (Total Haloacetic Acids)	Quarterly	N/A	60	98	38-118	Yes	By-product of drinking water chlorination
HAA5 (ppb) by site	DATE	MCLG	MCL	HIGHEST LRAA	RANGE DETECTED	VIOLATION	MAJOR SOURCES IN DRINKING WATER
833 Page Blvd.	Quarterly	N/A	60	91	63-107	Yes	By-product of drinking water chlorination
Catalina Pump Station	Quarterly	N/A	60	95	70-114	Yes	
1400 State St.	Quarterly	N/A	60	93	66-109	Yes	
Center St., Ludlow	Quarterly	N/A	60	91	57-113	Yes	
1043 Sumner Ave.	Quarterly	N/A	60	98	77-118	Yes	
292 Main St.	Quarterly	N/A	60	91	70-104	Yes	
N. Main St. Fire Station	Quarterly	N/A	60	93	67-114	Yes	
Chapin St., Ludlow	Quarterly	N/A	60	82	38-107	Yes	
TTHM (ppb) by site	DATE	MCLG	MCL	HIGHEST LRAA	RANGE DETECTED	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Catalina Pump Station	Quarterly	N/A	80	89	77-87	Yes	By-product of drinking water chlorination
Center St., Ludlow	Quarterly	N/A	80	87	78-87	Yes	
1043 Sumner Ave.	3/3/2022; 6/2/2022; 9/6/2022	N/A	80	85	74-86	Yes	
Chapin St., Ludlow	Quarterly	N/A	80	89	85-90	Yes	

Important Information from U.S. EPA and MassDEP

What could be in the water before it is treated?

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, humans, and wildlife.

Inorganic contaminants, such as salts and metals, can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.

Pesticides and herbicides may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic chemical contaminants include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

Radioactive contaminants can be naturally occurring or be the result of oil and gas production, and mining activities.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Glossary of Terms

CFU (Colony Forming Unit)

RAA (Highest Running Annual Average) - highest running annual average of four consecutive quarters.

LRAA (Locational Running Annual Average) - The average of four consecutive quarters of data taken at one location.

MCL (Maximum Contaminant Level) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level) - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal) - The level of a drinking water disinfectant below which there is no known expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

N/A - Not Applicable

NTU (Nephelometric Turbidity Units) - A numeric value indicating the cloudiness of water.

ORSG (Massachusetts Office of Research and Standards Guideline) - The concentration of a chemical in drinking water, at or below which adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

ppb (parts per billion)

ppm (parts per million)

SMCL (Secondary Maximum Contaminant Level) - The highest level of a contaminant that is allowed in drinking water for the secondary contaminants. These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

TT (Treatment Technique) - A required process intended to reduce the level of a contaminant in drinking water.

* **Turbidity** - A measure of the cloudiness of water. We monitor turbidity because it is a good indicator of the effectiveness of our filtration system.

** **Rapid Sand Filtration** - The turbidity level of the filtered water shall be less than or equal to 0.3 NTU in 95% of the measurements taken each month and shall not exceed a maximum of 1.0 NTU in any single measurement.

*** **Slow Sand Filtration** - The turbidity level of the filtered water shall be less than or equal to 1.0 NTU in 95% of the measurements taken each month and shall not exceed a maximum of 5.0 NTU in any single measurement.

**** **Unregulated Contaminants** - Substances for which EPA has set guidelines but not established drinking water standards.

Proud Stewards of the Region's Drinking Water

The Commission's team of 250 dedicated employees work across the Lower Pioneer Valley to operate and maintain the drinking water system.



Land stewards monitor and manage more than 14,000 acres of watershed forest surrounding Cobble Mountain Reservoir.



Information Technology staff maintain the Commission's technology infrastructure, including West Parish Filters Water Treatment Plant operating systems.



Technicians and Analysts in the Commission's state-certificated laboratory operate 365 days a year to test and analyze drinking water samples from throughout the distribution system.



Field Service crews maintain more than 500 miles of pipe and over 6,000 hydrants within the distribution system in Springfield and Ludlow.

Public Notification - Disinfection Byproducts (DBPs)

Maximum Contaminant Level (MCL) Exceedance

In 2022, the Commission issued four quarterly Public Notices regarding exceedances of the MCL for haloacetic acids (HAA5) and for total trihalomethanes (TTHM). The MCL for HAA5 is 60 parts per billion (ppb) and for TTHM the MCL is 80 ppb. Both MCLs are calculated as a 12-month locational running annual average (LRAA) of quarterly samples. The Commission first experienced a violation of the HAA5 drinking water standard in Fall 2018.

In accordance with regulations, the Commission issued a Public Notification by direct mail and in bills, the news media, and the internet for each exceedance.

This was not an emergency, and there was no immediate health risk. Customers were and are still advised that they can drink and use their water as usual. Disinfection byproducts are regulated due to the potential health risks if consumed at elevated levels over decades or a lifetime. Some people who drink water containing HAA5 in excess of the MCL over many years may have an increased risk of getting cancer. Some people who drink water containing TTHMs in excess of the MCL over many years may experience problems with liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

More information and full 2022 DBP test results are available at: <https://waterandsewer.org/dbps-faqs/>. Customers with further questions about this exceedance may call 413-452-1300.

How do DBPs Form?

DBPs form when chlorine, required for disinfection, interacts with dissolved natural organic matter (NOM). NOM enters Cobble Mountain Reservoir, the main source of the Commission's drinking water supply, through rain and snow runoff from the surrounding forest. The amount and types of dissolved NOM determine the amount of chlorine needed to maintain safe disinfection.

NOM levels in the reservoir fluctuate and are impacted by changing weather patterns and more intense, severe storms. In 2022, NOM levels in Cobble Mountain Reservoir decreased from the more elevated levels following record rainfall in 2021. However, in 2022, NOM levels in the reservoir remained elevated compared to the ten-year average.

Additionally, in 2022 the Commission utilized the older redundant slow sand filters more than typical, due to emergency repairs of a rapid sand filter bed. The slow sand filters are not as effective at removing NOM and contributed to the higher levels of DBPs in the distribution system. By August 2022 the emergency repairs to the rapid sand filter bed were completed and full capacity of the rapid sand filters was restored.

What is the Commission Doing to Address DBPs?

The Commission continues to modify its existing treatment process and system operations to reduce levels of DBPs in the distribution system as much as possible while maintaining safe chlorine levels. In 2015 the Commission initiated a planning process to modernize the existing 1970s-era West Parish Filters Water Treatment Plant to meet today's drinking water regulations and replace end-of-life infrastructure to improve system reliability.

The Commission is designing a new West Parish Filters Water Treatment Plant. The new drinking water treatment plant will include the addition of a new treatment step - Dissolved Air Flotation (DAF) - which will remove more NOM from the raw water prior to filtration, limiting the formation of DBPs in the distribution system (see page 2).

Learn more about the new treatment plant on the Commission's website: <https://waterandsewer.org/new-water-plant>.

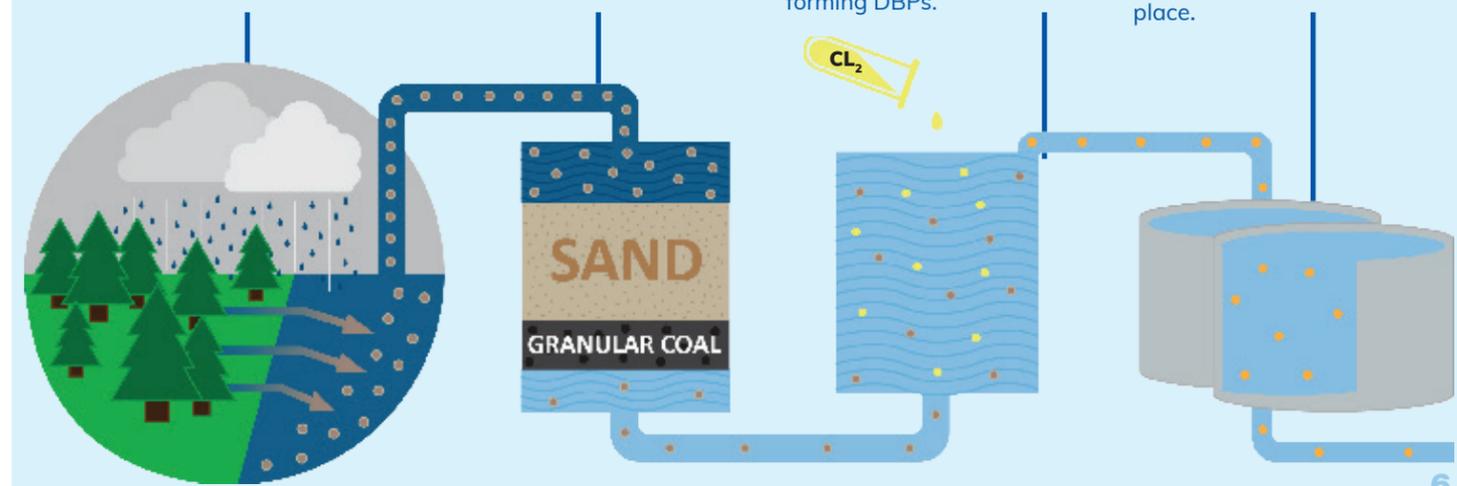
Disinfection Byproducts (DBPs) - How Do They Form?

Rainfall carries organic material from the forest into the reservoir.

Filters remove most of the organic material but some excess can remain.

When chlorine is added to filtered water, it reacts with the remaining organics, forming DBPs.

DBPs flow into the distribution system, where sampling takes place.



IMPORTANT WATER INFORMATION INFORMACIÓN IMPORTANTE SOBRE EL AGUA

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Ce rapport contient des renseignements très importants sur votre eau potable. Veuillez le traduire ou parler à quelqu'un qui le comprend.

Este relatório contém informações muito importantes sobre a sua água potável. Por favor, traduzir ou falar com alguém que entenda.

Questo rapporto contiene informazioni molto importanti sulla vostra acqua potabile. Si prega di tradurlo o parlare con qualcuno che lo capisce.

Raport ten zawiera bardzo ważne informacje na temat swojej wody pitnej. Proszę przetłumaczyć lub porozmawiać z kimś, kto go rozumie.

Báo cáo này có chứa thông tin rất quan trọng về nước uống của bạn. Xin vui lòng dịch nó hoặc nói chuyện với một ai đó hiểu nó.



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Lead and Drinking Water

Lead is not present in the source water in Cobble Mountain Reservoir or treated water entering the distribution system. The most common sources of lead poisoning are paint and dust containing lead. In cases where lead is detected in drinking water, it is usually due to leaching from pipes that contain lead, such as lead service lines, or plumbing, fixtures, or solder in the home/building plumbing. Leaching is most likely to occur when the water is not moving, generally overnight or at other times when water is not used for several hours.

In 1992 the Commission began to proactively remove lead service lines from the distribution system. As of November 2005, all known lead service lines have been removed and replaced. At the treatment plant, water is treated with orthophosphate to inhibit the corrosion of home/building plumbing and to help prevent lead from leaching into water. Testing for the presence of lead and copper is regulated under EPA's Lead and Copper Rule. Testing takes place in three-year cycles.

LEAD AND COPPER SAMPLING TABLE - 2021

SUBSTANCE	MCLG	Action Level (AL)	90th PERCENTILE SAMPLE	SAMPLING SITES EXCEEDING THE ACTION LEVEL	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Copper (ppm)	1.3	AL = 1.3	0.0909	0 out of 50	No	Corrosion of household plumbing systems
Lead (ppb)	0	AL = 15.0	0	2 out of 50	No	

The above table represents the latest round of lead and copper sampling that took place in the summer of 2021. The next required round of lead and copper sampling will take place in the summer of 2024 per regulatory requirements.

AL (Action Level) - The concentration of a contaminant that if exceeded, triggers treatment or other requirements that a water system must follow.

90th Percentile - Out of every 10 homes sampled, 9 were at or below this level.

Cross Connection Control Program

A cross connection is formed at any point where a drinking water line connects to a polluted source, such as boilers, air conditioning systems, fire sprinkler systems, irrigation systems, laboratory equipment, plating tanks, or chemical vats. In residences, a common cross connection is a garden hose attached to a fertilizer or chemical sprayer container, or a hose inserted into a pool. If water pressure drops, perhaps due to nearby fire hydrant use or a water main break, the resulting vacuum can pull pollutants back into the water system.

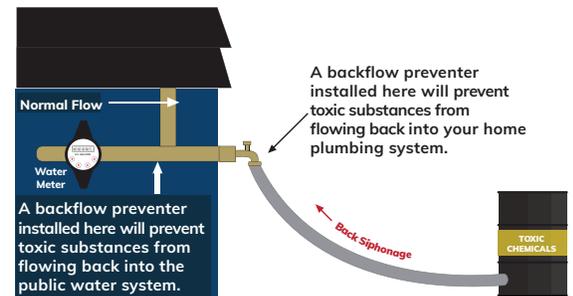
To prevent contamination through cross connections:

- Never submerge a hose in soapy water buckets, pet watering containers, pools, tubs, sinks, drains, or chemicals.
- Never attach a hose to a chemical sprayer without a backflow preventer.
- Buy and install an inexpensive hose connection vacuum breaker on every threaded water fixture.
- Buy appliances and equipment with a backflow preventer.

If you are an owner of industrial, institutional, or commercial property, you must have your facility's internal plumbing surveyed for cross connection hazards, install proper backflow devices, or eliminate cross connections entirely.

For more information, contact the Commission's Cross Connection Control Program at 413-310-3501.

Backflow Prevention



Health Risks of Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Commission is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

MCL (Maximum Contaminant Level) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.