

# Three Rivers Fire District

Public Water System (PWS) ID #1227003

## 2023 ANNUAL DRINKING WATER QUALITY REPORT

This report is a snapshot of the quality of drinking water that was provided to you last year. Included are details about where your water came from and what it contained. Our system makes every effort to provide you with drinking water that meets all state and federal standards. To summarize the results, every water sample collected during 2023 was found to be within permissible limits.

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Nicole Dewberry, Water Superintendent • 2031 Main Street • Three Rivers, MA 01080 • 413-283-9284

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This report contains very important information about your drinking water.  
Have someone translate it for you, or speak with someone who understands it.

### ~ Community Drinking Water Source ~

**T**hree Rivers Fire District (TRWD) is located in Palmer, MA, and supplies water by groundwater wells located near the Ware River on route 181, near Pathfinder Regional Vocational High School. These wells are known as PWS Source ID#1227003-01G (01G) (Well #1) and PWS Source ID#1227003-03G (03G) (Well #3). This water is treated, pumped into the distribution system, and delivered to your home. Water tanks that hold a total of 1.5 million gallons are located on Baptist Hill; they maintain consistent water pressure and provide extra storage in the event of firefighting needs. There are also interconnections with the neighboring Districts of Bondsville and Thorndike, and these are available to the Three Rivers Fire District as emergency sources. During 2023, Three Rivers supplied water through interconnects to part of Thorndike and, for a short time, to many in Bondsville.

The Three Rivers Fire District continuously strives to produce the highest quality water possible to meet or surpass every water quality standard. We closely monitor our water sources and distribution system. The standards we operate under were enacted by the U.S. Congress as the Safe Drinking Water Act in 1974 and were amended in 1986 and 1996. On the state level, we abide by 310 CMR 22: The Massachusetts Drinking Water Regulations. Groundwater has different properties than surface water, and the potential for related threats of contamination must be considered. It is very important for you to understand where your water comes from so that you may be aware of any potential for contamination.

### Water System Operations and Improvements

During the last year, TRWD worked to upgrade system components including routine preventative maintenance at the pump station, the repair of multiple leaks on service lines throughout the distribution system, and the repair of one water main break. TRWD also completed hydrant flushing during the spring and fall to maintain water quality. These and other preventative maintenance practices and improvements will ensure the integrity of our infrastructure for years to come.

### Future Projects

We have submitted or will soon submit grant applications to federal and state agencies. These projects are for the purposes of long term financial and infrastructure planning, and for current maintenance. If successful, the results of these grant applications and the associated projects will be shared with you in a future report. You're welcome to attend our meetings to learn more about our ongoing work. For more information about our meetings, please see the last section in this report titled, "Opportunities to Participate."

## Chemicals Added to the Water

To ensure that we provide the highest quality of water available, certified operators and the Mass DEP regularly monitor water quality. When standards are not met, Mass DEP requires treatment.

Because most groundwater sources in New England are naturally corrosive (pH of less than 7.0), the water supplied to the consumer has a tendency to corrode metals, especially lead and copper, in your home piping and fixtures. Since your water comes from the “ground” via wells, it is slightly corrosive. Using **Sodium Hydroxide (NaOH)**, a chemical similar to lime, we slightly adjust your water to “sweeten” or raise the pH. In effect, this mitigates the leaching of metals from your plumbing into your drinking water.

While other drinking water systems that rely on surface water sources treat with chlorine to help initially “clean” the water, water from groundwater sources including ours are free of bacteria. The purpose of adding **Sodium Hypochlorite (NaOCl)**, a type of chlorine, is to maintain a residual of this chemical in the water for the purposes of disinfection as it travels throughout the District. While the water resides within the pipes and water storage tanks, this chlorine residual helps to ensure that the water remains free of bacteria, especially during the warmest months of the year when the chances of finding bacteria are greatest. The dose of Sodium Hypochlorite added to the water during the winter months is approximately half of what is required during the summer months in order to maintain a residual throughout the distribution system.

The Massachusetts Department of Environmental Protection has reduced the monitoring requirements for Synthetic Organic Compounds because the source is not at risk of contamination. The last sample for these contaminants was taken during 2021 and was found to meet all applicable EPA and MassDEP standards.

## Water Pipe Inventory

All water departments throughout the country are required to document water pipes at the point where they enter homes. We are required to complete the project before October 2024.

Your water pipe may be documented in one of two ways:

1. You may call the Three Rivers Water Department at 413-283-9284 and schedule an appointment for us to come to your house and document your water pipe for you.



2. You may use the Mass DEP sponsored web application for consumers to document your water pipe. Either scan the QR code to the left, or go to the following link.

<https://app.smartsheet.com/b/form/f9ee39b7972f443ca63e8b936cd7f92b>

Please note that you do not need to download an app to your mobile device or computer. All you need to do is take a photo, upload it to the website, and answer a few basic questions.

Take a photo of your water pipe where it comes from the street in to your house. You will likely find it coming in through the wall of your basement, near the water meter. Then identify it:

**Plastic** service lines may be different colors such as blue or white.

**Copper** service lines are the color of either a new or a corroded penny.

**Lead** service lines are dull silver/gray in color. It’s easy to scratch the exterior. A strong magnet will not cling to a lead pipe.

**Galvanized Steel** service lines are also dull silver/gray in color. It is not easy to scratch the exterior. A strong magnet will cling to galvanized steel.

## ~ Substances Found in Tap Water ~

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, and wildlife.

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

Pesticides and herbicides -which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

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

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

In order to ensure the quality of tap water, the Department of Environmental Protection (Mass DEP) 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 (Mass DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. 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 (800-426-4791).

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 some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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. Three Rivers Fire District 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 or at <http://www.epa.gov/safewater/lead>.

## ~ Distribution System Water Quality ~ A Summary of Finished Water Characteristics

Last year, your tap water met all EPA and state drinking water health standards.

Water quality data presented in the tables below is from the most recent round of testing done in accordance with our Water Quality Sampling Schedule issued by Mass DEP. Most of the data presented in this table is from samples collected between January 1 – December 31, 2023. The state allows us to monitor for some contaminants less than once per year because the concentrations of those contaminants do not change frequently. Some of our data, though representative, are more than one year old. For those contaminants, the date of the most recent sample is shown in the table. Only the detected contaminants are shown.

Of the multiple dates on which samples were collected, and of the multiple locations from which samples were collected, only the highest concentrations upon which our system’s compliance is based are listed in this report. The numbers in the “Results” or “Value” column are based on the highest concentration detected.

To understand the labels used in these tables, please refer to the following section titled “Important Definitions.”

Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Inorganic Contaminants</b>							
Barium (ppm)	12/13/2023	0.197	0.03-0.197	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium (ppb)	12/13/2023	0.110	ND-0.001	100	100	N	Discharge from steel and pulp mills; Erosion of natural deposits
Lead (ppb)	12/14/2020	0.80	0.80	15	0	N	Corrosion of household plumbing systems; Erosion of natural deposits
Nitrate (ppm)	12/13/2023	2.4	0.39-2.4	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
PFAS6 (ppt)	10/31/2023	5.63	3.35-5.63	20	N/A	N	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.
<b>Disinfectants and Disinfection By-Products</b>							
Chlorine (free) (ppm)*	5/4/2023	0.626 is highest quarterly running annual average	0.48-0.96	4	4	N	Water additive used to control microbes
Haloacetic Acids (HAA5s) (ppb)	8/10/2023	6.9 is highest result	2.9-6.9	60	--	N	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)*	8/10/2023	17.4 is highest result	7.84-17.4	80	--	N	Byproduct of drinking water disinfection
*At the locations where monthly samples are collected for bacteriological analysis, the level of free chlorine residual in the drinking water is also determined. The highest concentration detected is listed here.							

Secondary Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source
Copper (ppm)	12/14/2020	0.449	0.16915	1	N/A	Naturally occurring organic material
Iron (ppb)	5/9/2023	15	3.75	300	N/A	Natural and industrial sources as well as aging and corroding distribution systems and household pipes
Manganese (ppb)*	5/10/2022	1	0.25	50	300	Erosion of natural deposits
*US EPA and Mass DEP have established public health advisory levels for manganese to protect against concerns of potential neurological effects and a one-day and 10-day HA of 1000 ppb for acute exposure.						

## Lead and Copper Rule

	Date(s) Collected	90 <sup>TH</sup> percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	December 2023	2.3	15	0	20 per sampling period	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	June 2023	0.374	1.3	1.3	20 per sampling period	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Unregulated Contaminants <sup>†</sup>	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source
Perfluorobutanesulfonic Acid (PFBS) (ppt)	10/31/2023	highest detect: 5.63 lowest detect: ND	2.815	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
Perfluoroheptanoic Acid (PFHPA) (ppt)	10/13/2022	highest detect: 5.5 lowest detect: ND	1.055	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
Perfluorohexanoic acid (PFHxA) (ppt)	10/13/2022	highest detect: 3.88 lowest detect: ND	0.485	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
Perfluorooctanoic Acid (PFOA) (ppt)	10/31/2023	highest detect: 3.35 lowest detect: ND	1.675	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
Sodium (ppm) *	12/13/2023	highest detect: 49 lowest detect: 19.7	34.35	N/A	20	Discharge from the use and improper storage of sodium-containing de-icing compounds or in water-softening agents

<sup>†</sup> Unregulated contaminants are those for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted.

\* Some people who drink water containing sodium at high concentrations for many years could experience an increase in blood pressure.

## ~ Important Definitions ~

**Maximum Contaminant Level (MCL)** – 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.

**Secondary Maximum Contaminant Level (SMCL)** – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

**Maximum Contaminant Level Goal (MCLG)** – 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.

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

**90<sup>th</sup> Percentile** – Out of every 10 homes sampled, 9 were at or below this level.

**Unregulated Contaminants** – Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

**Massachusetts Office of Research and Standards Guideline (ORSG)** – This is 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.

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

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

**Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Level 1 Assessment** – A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

**Level 2 Assessment** – A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

ppm = parts per million, or milligrams per liter (mg/l)

ppb = parts per billion, or micrograms per liter (ug/l). To put this into perspective, if an Olympic-sized pool were filled with ping-pong balls, a ppb would be equivalent to one ping-pong ball in that pool.

ppt = parts per trillion, or nanograms per liter. This is equivalent to a single drop of food coloring in 18 million gallons of water OR a single second out of 32,000 years OR one square inch in 250 square miles OR 1 teaspoon in an Olympic-sized swimming pool.

ND = Not Detected

N/A = Not Applicable

## ~ Educational Information ~

### **Source Water Assessment and Protection (SWAP)**

Mass DEP has prepared a Source Water Assessment and Protection (SWAP) report for the Three Rivers Fire District. The report assesses the susceptibility of public water supplies to contamination, and makes recommendations. A susceptibility ranking of high was assigned to this system using the information collected during the assessment by Mass DEP. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (for example, clay) that can serve to block out potential contamination. The overall ranking of susceptibility is also based on the presence of at least one high threat land use within the water supply protection areas. This report is available at the office of the Three

Rivers Fire District's Water Department at 2031 Main Street, Three Rivers, MA 01081, and on the Mass DEP website at <https://www.mass.gov/doc/western-region-source-water-assessment-protection-swap-program-reports/download>.

Residents may help to protect source waters by:

- Practicing good septic system maintenance
- Supporting water supply protection initiatives at town meetings
- Taking hazardous household chemicals to hazardous materials collection days
- Limiting pesticide and fertilizer use

### **Cross-Connection Control and Backflow Prevention**

The Three Rivers Fire District makes every effort to ensure that the water delivered to your home and business is clean, meets all state and federal drinking water standards, and is free of contamination. Our staff works to protect the quality of the water delivered to our customers from the time the water is extracted from the wells and flows throughout the entire treatment and distribution system. But what happens when the water reaches your home or business? Is there still a need to protect the water quality from contamination caused by a cross-connection? If so, how?

What is a cross-connection? A cross-connection occurs whenever the drinking water supply is or could be in contact with potential sources of pollution or contamination. Cross-connections exist in piping arrangements or equipment that allows the drinking water to come in contact with non-potable liquids, solids, or gases (hazardous to humans) in the event of a backflow. A cross connection is an actual or potential connection between a drinking water pipe and a polluted source.

The contaminant enters the water system in two possible ways:

: back siphonage - the pressure of the polluted source exceeds the pressure of the water system, and so forces its way into the drinking water.

: backflow – the pressure of the water system is less than that of the polluted source, and so the polluted source is sucked into the drinking water system.

Essentially, both of these are reversals of the hydraulic gradient, and may be caused by a variety of circumstances.



What may I do about it? The pollution may come from your own home. For instance, if you spray fertilizer on your lawn, you hook up your hose to the sprayer that contains the fertilizer. If the water pressure drops at the same time you turn on the hose, the fertilizer may be sucked back into the drinking water pipes through the hose. This problem may be prevented by using an attachment on your hose called a backflow-prevention device.

The Three Rivers Fire District recommends the installation of backflow prevention devices, such as a low cost hose bib vacuum breaker, for all inside and outside hose connections. You may purchase this at a hardware store or plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water system in your town! For additional information on cross connections and on the status of your water system's cross connection program, please call the Three Rivers Water Department at 413-283-9284.



What may I do to help prevent a cross-connection? Without the proper protection, something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your house. In fact, over half of the country's cross-connection incidents involve unprotected garden hoses.

There are very simple steps that you as a drinking water user may take to prevent such hazards. They are:

- NEVER submerge a hose in soapy water buckets, pet watering containers, pool, tubs, sinks, drains, or chemicals.
- NEVER attach a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bibb vacuum breaker on any threaded water fixture. The installation may be as easy as attaching a garden hose to a spigot. This inexpensive device is available at most hardware stores and home-improvement centers.
- Identify and be aware of potential cross-connections to your water line.
- Buy appliances and equipment with backflow preventers.
- Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections.

If you are the owner or manager of a property that is being used as a commercial, industrial, or institutional facility you must have your property's plumbing system surveyed for cross-connection by your water purveyor. If your property has NOT been surveyed for cross-connection, contact the water department to schedule a cross-connection survey.

## ~ Opportunities to Participate ~

If you would like to participate in discussions regarding your water quality you may attend regular meetings of the Prudential Committee, held during most months on the third Wednesday of the month at 6:30 pm, at the Fire Station at 50 Springfield Street. If your concerns need immediate attention, contact the Water Department office at (413) 283-9284, or visit during our office hours, on Monday – Thursday mornings.

This report was prepared by the Three Rivers Fire District.  
Also available at <http://www.townofpalmer.com>