



2024 Consumer Confidence Report  
For  
Manchester Water  
Manchester-by-the-Sea, Massachusetts  
MASSDEP PWSID # 3166000



This report is a snapshot of the drinking water quality that the Town provided last year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards. We are committed to providing you with this information because informed customers are our best allies.

## PUBLIC WATER SYSTEM INFORMATION

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### Water System Improvements

Our water system is routinely inspected by the Massachusetts Department of Environmental Protection (MassDEP). MassDEP inspects our system for its technical, financial, and managerial capacity to provide safe drinking water to you. To ensure that we provide the highest quality of water available, your water system is operated by a Massachusetts certified operator who oversees the routine operations of our system. The Gravelly Pond Water Treatment Facility has been contract operated since it went online in 1997. The operation of the Manchester Water Treatment Facilities is performed by Woodard & Curran Inc., the town's contract operator since the year 2000. The Department of Public Works operates the distribution system under the Director. The most recent Sanitary Survey was conducted on 9.23.2023, by MassDEP and there were no violations noted. The Moses Hill Standpipe was last inspected and cleaned by Underwater Solutions Inc. on 01.30.2023 and was found to be in good condition.

As part of our ongoing commitment to you, our customers, **during 2024 we made the following improvements to our system:** replacement of the remaining 6-inch water pipe on Forest Street and a small section remaining on School Street. This will increase capacity, and reliability, while also improving water quality throughout the entire town. This work was funded through a MASS WORKS grant as part of the project to bring water and sewer utilities to the Limited Commercial District (LCD). An additional project was completed on the 16-inch cast iron pipe on Pleasant Street via cleaning and lining, from the intersection of Pine Street to School Street. This project will improve capacity to the entire east side of town and is a critical line between the Gravelly Pond WTF, Moses Hill Standpipe and the rest of Town.

### PFAS Updates

On April 10, 2024, the United States Environmental Protection Agency (EPA) issued National Primary Drinking Water Regulations (NPDWR) for Per- and Polyfluoroalkyl Substances (PFAS) establishing Maximum Contaminant Levels (MCLs) for six PFAS. The new EPA regulations are lower than those set by the Massachusetts Department of Environmental Protection (MassDEP) in 2021, and generally in line with the proposal EPA set forth in March of 2023. While both MassDEP and EPA utilize a similar approach to these chemicals, as the EPA limits are more stringent, they will need to be adopted by MassDEP. These regulations—established by the EPA, to be adopted by MassDEP—will put the Town's Lincoln Street Well out of compliance. Further, the Gravelly Pond WTF's finished water compliance status is currently unclear, as the regulations are based on a running annual average (RAA) and we have had individual samples above the upcoming limits. (**Note:** all PFAS test results are posted on the Town's PFAS website <https://manchester.ma.us/777/PFAS>). Based on current understanding of the promulgated regulations, the Town would have five years (sometime in 2029) to come into compliance. The Town has since completed piloting and bench scale testing at both facilities and will be under design at the Lincoln Street Well in 2025, with construction to follow in 2026. Additional design and construction will take place at the Gravelly Pond WTF during this time as well. The Town will keep the public informed throughout this process and aims to be in compliance prior to the 2029 deadline.

### Lead Service Line Updates

In 2024 the Town was required by the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) to develop a Water Service Line Inventory with a focus on identifying lead services and a plan for removal. The initial inventory submittal was made to MassDEP in October 2024 and additional identification of unknown service line material is ongoing. Additional information on the Town's lead service line replacement project can be found here: <https://manchester.ma.us/827/Lead-Service-Line-Project>.

## Opportunities for Public Participation

The Town’s Select Board serves as the Water Commissioners. The Board currently meets on the first and third Monday of every month, with additional meetings held as needed. If you would like to participate in discussions regarding your water quality, all residents are welcome to attend and participate in these meetings, though you must call in advance if you wish to be on the agenda.

## Manchester-by-the-Sea Public Water System

The Manchester-by-the-Sea Public Water System consists of the following:

- Gravelly Pond Water Treatment Facility: Gravelly Pond Reservoir, Raw Water Pump Station, and Water Treatment Facility building.
- Round Pond Well: Round Pond Well and Well House. Facility used as an aid for Gravelly Pond recharge.
- Lincoln Street Well Water Treatment Facility: Lincoln Street Well, Well House, and Chemical Building.
- Distribution System: 44 miles of public water mains, with a vast majority of the mains being over 100 years old; Water Storage Facility: Moses Hill Standpipe with a capacity of 1.7 MGD.

# YOUR DRINKING WATER SOURCES

## Where Does My Drinking Water Come From?

Your water is provided by the following sources listed below:

Source Name	MassDEP Source ID#	Source Type	Location of Source
<b>Gravelly Pond WTF</b>	3166000-01S	Surface water	Chebacco Road, Hamilton (at town line)
<b>Lincoln Street Well</b>	3166000-01G	Groundwater	Lincoln Street, Manchester
<b>Round Pond Well</b>	3166000-02G	Groundwater	Chebacco Road, Hamilton

The first source, the **Gravelly Pond Water Treatment Facility**, is a surface water treatment facility, which is located off Chebacco Road in Hamilton. In the year **2024** the Gravelly Pond WTF provided approximately **64.1 percent** of Manchester’s drinking water – or **142.931 million gallons**. The Gravelly Pond reservoir has a surface area of 49 acres and a capacity of over 360 million gallons when full. The pond is fed by rainfall, runoff from the surrounding area, and groundwater springs. The pond’s watershed, or area that drains into the pond, is relatively small and the ability of the pond to recharge, or fill back up, is limited.

The second source is the **Lincoln Street Well**. This is a 58-foot-deep, 500 GPM, gravel packed well which is located next to the Manchester/Essex Regional Junior/ Senior High School on Lincoln Street in Manchester. Groundwater is pumped from a sand and gravel deposit that underlies the area. In the year **2024** the Lincoln Street Well provided approximately **35.9 percent** of Manchester’s drinking water – or **79.891 million gallons**.

To supplement the Gravelly Pond supply and in aiding with watershed recharge, the Town pumps water from our third source, the **Round Pond Well**, which is located along Chebacco Road in Hamilton - into Gravelly Pond. A total of **60.562 million gallons** were transferred in **2024**.

## Is My Water Treated?

The Gravelly Pond Water Treatment Facility treats water from both Gravelly Pond and Round Pond Well. Treatment processes include oxidation, coagulation, pH adjustment, clarification, filtration, fluoridation, disinfection, and corrosion control. Filtration is a mechanical and chemical process used to remove particulates from water. Federal and State drinking water regulations require all surface sources to be filtered and disinfected to remove harmful micro-organisms. Filtration is used to remove microorganisms and oxidized iron and manganese, (compounds which can cause discolored water at higher concentrations). Disinfection, fluoridation, pH adjustment and corrosion control are accomplished with chemical additives at the Lincoln St. Well pump station and treatment facility with no filtration.

The water quality of our system is constantly monitored by Woodard & Curran, Town’s Water Department, and MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

## How Are These Sources Protected?

### Watershed Protection

One of the best ways to protect your drinking water is to take measures so pollutants don't get into it in the first place. To protect Manchester's water supplies, the town has acquired the land surrounding Gravelly Pond and restricts activities in this area to passive recreation such as hiking and cross-country skiing. Unfortunately, for many years the Town did not protect its Lincoln St. well and so there are numerous activities present that would not normally be allowed in a protected Zone I area. The Town has or will have agreements with the Regional School District and Essex County Club to assure maximum protection of our drinking water resource is achieved.

The Department of Environmental Protection published its Source Water Assessment Program (SWAP) Report for Manchester' Public Water Supply on June 27, 2003. The SWAP report notes that both our Lincoln Street Well and Gravelly Pond sources have land uses adjacent to the source that would be prohibited under today's regulations. The SWAP report has seven recommendations. The two critical recommendations are as follows:

1. Continue to inspect Zone A and Zone 1 areas regularly, and when feasible, remove prohibited non-water supply activities.
2. Develop and implement a groundwater and surface water supply protection plan.

The complete SWAP report is available in the Department of Public Works office where it can be reviewed during normal business hours or call (978) 526-1242 for additional information.

## SUBSTANCES FOUND IN TAP WATER

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).

The 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.

### Immuno-compromised Persons

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).

### Regulatory Resources

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.

### Lead Information

Lead can cause serious health effects in people of all ages, especially pregnant people, infants (both formula-fed and breastfed), and young children. Lead in drinking water is primarily from materials and parts used in service lines and home plumbing. Manchester Water along with the Manchester Department of Public Works is responsible for providing high quality drinking water and removing lead pipes but cannot control the variety of materials used in the plumbing in your home. Because lead levels may vary over time, lead exposure is possible even when your tap sampling results do not detect lead at one point in time. You can help protect yourself and your family by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Using a filter, certified by an American

National Standards Institute accredited certifier to reduce lead, is effective in reducing lead exposures. Follow the instructions provided with the filter to ensure the filter is used properly. Use only cold water for drinking, cooking, and making baby formula. Boiling water does not remove lead from water. Before using tap water for drinking, cooking, or making baby formula, flush your pipes for several minutes. You can do this by running your tap, taking a shower, doing laundry or a load of dishes. If you have a lead service line or galvanized requiring replacement service line, you may need to flush your pipes for a longer period. If you are concerned about lead in your water, and wish to have your water tested, contact the Manchester Department of Public Works. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at <http://www.epa.gov/safewater/lead>.

## 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.

**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.

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

### **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.

**Running Annual Average (RAA)** – The average of four consecutive quarter of data.

**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.

- ppm** = parts per million, or milligrams per liter (mg/l)
- ppb** = parts per billion, or micrograms per liter (ug/l)
- ppt** = parts per trillion, or nanograms per liter
- pCi/l** = picocuries per liter (a measure of radioactivity)
- NTU** = Nephelometric Turbidity Units
- ND** = Not Detected
- N/A** = Not Applicable
- mrem/year** = millirem per year (a measure of radiation absorbed by the body)

## WATER QUALITY TESTING RESULTS

### **What Does This Data Represent?**

The water quality information presented in the table is from the most recent round of testing done in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the table(s). We are not required to list the 200-300 biological, chemical, or other potential contaminants we test for that do not appear in our drinking water. We are committed to providing you with the best water quality available. We are proud to report that last year your drinking water met all applicable health standards regulated by the state and federal government. Results with a prior year(s) date are from the last monitoring period that those contaminants were required to be sampled per our MassDEP sampling plans.

## Lead and Copper

	Date(s) Collected	90 <sup>TH</sup> percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Range	Possible Source of Contamination
Lead (ppb)	Q3 2024	ND	15	0	20	0	ND – 2.80	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	Q3 2024	0.188	1.3	1.3	20	0	0.038 – 0.424	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

There is no safe level of lead in drinking water. Exposure to lead in drinking water can cause serious health effects in all age groups, especially pregnant people, infants (both formula-fed and breastfed), and young children. Some of the health effects to infants and children include decreases in IQ and attention span. Lead exposure can also result in new or worsened learning and behavior problems. The children of persons who are exposed to lead before or during pregnancy may be at increased risk of these harmful health effects. Adults have increased risks of heart disease, high blood pressure, kidney or nervous system problems. Contact your health care provider for more information about your risks.

When water leaves the treatment facilities, the levels of lead and copper are insignificant and sometimes not detectable. The source for lead and copper is believed to be the piping in the homes' internal plumbing and old service lines. As water sits in stagnant pipes, during periods of low use, copper and lead in the pipes can leach into the drinking water. Lead was used in brass manufacturing and pipe solder. Woodard & Curran performed the Manchester Water Department's required sampling for Lead and Copper in August and September of 2024. This process consisted of collecting samples from 20 different residential homes, and 2 samples each at 2 different schools and/or daycares located in Manchester. The sampling plan was approved by MassDEP based on when the home was constructed, and the type of materials used in the service line to the home. The sampling plan is intended to capture locations with the highest potential for lead exposure in drinking water.

## Turbidity

Turbidity	TT	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Daily Compliance (NTU)	1.0*	-----	0.091	N	Soil runoff; natural organic matter
Monthly Compliance*	At least 95%	100%	-----	N	
Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.					
*1.0 NTU = TT MCL for conventional or direct filtration.					
*5.0 NTU = TT MCL for slow sand filtration, diatomaceous earth filtration, or other filtration.					
*Monthly turbidity compliance is related to a specific treatment technique (TT). Our system filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations.					

## Regulated Contaminants

Regulated Contaminant (unit of measure)	Date(s) Collected	Highest Result or Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Inorganic Contaminants</b>							
Barium (ppm)	07.11.2024	0.0133	0.0095—0.0171	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride (ppm) ■	2024	0.685	0.535-0.815	4	4	N	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (ppm)	07.11.2024	0.78	0 – 1.56	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
■ Fluoride also has a secondary contaminant level (SMCL) of 2 ppm.							

Regulated Contaminant (unit of measure)	Date(s) Collected	Highest Result or Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Radioactive Contaminants</b>							
Radium 226 & 228 (pCi/L) (combined values)	08.16.2023	0.285	0.00 – 0.57	5	0	<b>N</b>	Erosion of natural deposits
<b>Disinfectants and Disinfection By-Products</b>							
Total Trihalomethanes (TTHMs) (ppb)	Quarterly in 2024	45	23 – 53	80	N/A	<b>N</b>	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	Quarterly in 2024	18	14 – 24	60	N/A	<b>N</b>	Byproduct of drinking water disinfection
Chlorine (free) (ppm)	2024	1.03	0.70 – 1.34	4	4	<b>N</b>	Water additive used to control microbes

<b>Per- and Polyfluoroalkyl Substances - PFAS</b>								
Regulated Contaminant (unit of measure)	Date(s) Collected	Site	Highest Result or Highest Quarterly Average Detected	Range Detected	MCL	Violation (Y/N)	Possible Source(s) of Contamination	Health Effects
PFAS6 (ppt)	2024	01S	Q4 2024 6.97	2.42 – 7.25	20	<b>N</b>	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of common household materials such as: moisture and oil resistant coatings on fabrics, fleeces, and other textiles, as well as items containing Teflon, like coated cooking pans. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.	Some people who drink water containing these PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers
		01G	Q1 2024 14.78	10.93 – 16.63	20	<b>N</b>		

## Secondary and Unregulated Contaminants

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.

Secondary Contaminants are not related to public health and are established for aesthetics concerns only.

Secondary Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source
Aluminum (ppm)	11.19.2024	0.011 – 0.016	0.014	0.2	N/A	Residue from water treatment process: erosion of natural deposits
Chloride (ppm)	11.19.2024	50.8 – 152.0	101.4	N/A	250	Runoff and leaching from natural deposits; seawater influence
Copper (ppm)	11.19.2024	0.000 – 0.034	0.017	1	N/A	Naturally occurring organic material
Iron (ppb)	11.19.2024	0.0 – 40.0	20.0	300	N/A	Naturally occurring, corrosion of cast iron pipes
Manganese* (ppb)	2024	17.0 – 70.0	37.0	50	Health Advisory of 300	Natural sources as well as discharges from industrial uses
pH	2024	7.24 – 7.55	7.43	6.5-8.5	N/A	Runoff and leaching from natural deposits; seawater influence
Sulfate (ppm)	11.19.2024	13.4 – 18.9	16.15	250	N/A	Natural sources
Total Dissolved Solids (TDS) (ppm)	11.19.2024	150 – 340	245	500	N/A	Erosion of natural deposits.
Zinc (ppm)	11.19.2024	0.016 – 0.207	0.112	5	N/A	Erosion of natural deposits, leaching from plumbing materials

\*US EPA and MassDEP have established public health advisory levels for manganese to protect against concerns of potential neurological effects.

Unregulated Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source
Bromodichloromethane (ppb)	07.11.2024	0.00 – 6.76	3.38	N/A	N/A	Trihalomethane; by-product of drinking water chlorination
Bromoform (ppb)	07.11.2024	0.00	0.00	N/A	N/A	Trihalomethane; by-product of drinking water chlorination
Chlorodibromomethane (ppb)	07.11.2024	0.00 – 4.04	2.08	N/A	N/A	Trihalomethane; by-product of drinking water chlorination
Chloroform (ppb)	07.11.2024	0.00 – 6.05	3.03	N/A	70	By-product of drinking water chlorination (In non-chlorinated sources it may be naturally occurring)
Sodium (ppm)	2024	29.9 – 103.0	66.45	N/A	20	Discharge from the use and improper storage of sodium-containing de-icing compounds or in water-softening agents
Conductivity (ohms/cm)	07.11.2024	230 – 720	475	N/A	N/A	From dissolved salts and inorganic materials such as alkalis, chlorides, sulfides and carbonate compounds
Hardness [CaCO <sub>3</sub> ] (ppm)	11.19.2024	44.9 – 92.9	68.9	N/A	N/A	Naturally present in the environment
Alkalinity [CaCO <sub>3</sub> ] (ppm)	11.19.2024	38 – 77	58	N/A	N/A	-----
Potassium (ppm)	11.19.2024	1.9 – 5.3	3.6	N/A	N/A	Naturally occurring element
Magnesium (ppm)	11.19.2024	3.14 – 9.22	6.18	N/A	N/A	Naturally present in the environment
Calcium (ppm)	11.19.2024	12.8 – 22.0	17.4	N/A	N/A	Naturally present in the environment

Unregulated Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source
Phosphate (ppm)	2024	0.33 – 1.62	1.17	N/A	N/A	Water additive for corrosion control
Per- and Polyfluoroalkyl Substances – PFAS [CASRN]						
N-methyl perfluorooctanesulfonamide acetic acid (NMeFOSAA) (ppt) [2355-31-9]	Q2 2024	Site 01G 0.715 – 0.864	0.790	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
Perfluorobutanesulfonic <sup>1</sup> Acid (PFBS) (ppt) [375-73-5]	2024	Site 01S 0.694 – 0.764	0.729	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
	2024	Site 01G 2.01 – 4.46	3.24	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
	10.04.2023	Site 02G 0.845	0.845	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
Perfluoro hexanoic acid (PFHxA) (ppt) [307-24-4]	2024	Site 01S 0.80 – 1.32	1.11	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
	2024	Site 01G 2.89 – 4.31	3.72	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
	10.04.2023	Site 02G 0.649	0.649	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (ppt) [763051-92-9]	04.02.2025	Site 01S 0.672	0.672	N/A	N/A	Manmade chemical; used in products to make them stain, grease, heat and water resistant

## COMPLIANCE WITH DRINKING WATER REGULATIONS

### Does My Drinking Water Meet Current Health Standards?

We are committed to providing you with the best water quality available. We are proud to report that last year your drinking water met all applicable health standards regulated by the state and federal government.

## EDUCATIONAL INFORMATION

### Do I Need To Be Concerned about Certain Contaminants Detected in My Water?

**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.

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. 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. Manchester Water 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>.

**Manganese** is a naturally occurring mineral found in rocks, soil, groundwater, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet but can have undesirable effects on certain sensitive populations at elevated concentrations. The United States Environmental Protection Agency (EPA) and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 ug/L (microgram per liter), or 50 parts per billion. In addition, MassDEP's Office of Research and Standards (ORS) has set a drinking water guideline for manganese (ORSG), which closely follows the EPA public health advisory for manganese. **Drinking water may naturally have manganese and, when concentrations are greater than 50 ppb, the water may be discolored and taste bad. Over a lifetime, the EPA recommends that people drink water with manganese levels less than 300 ppb and over the short term, EPA recommends that people limit their consumption of water with levels over 1000 ppb, primarily due to concerns about possible neurological effects. Children younger than one year old should not be given water with manganese concentrations over 300 ppb, nor should formula for infants be made with that water for more than a total of 10 days throughout the year.** The ORSG differs from the EPA's health advisory because it expands the age group to which a lower manganese concentration applies from children less than six months of age to children up to one year of age to address concerns about children's susceptibility to manganese toxicity.

See EPA Drinking Water Health Advisory for manganese at: [https://www.epa.gov/sites/production/files/2014-09/documents/support\\_cc1\\_magnese\\_dwreport\\_0.pdf](https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_magnese_dwreport_0.pdf)

MassDEP Office of Research and Standards (ORSG) for manganese at: [https://www.mass.gov/doc/massdep-office-of-research-and-standards-guideline-orsg-for-manganese/download?\\_ga=2.224281821.778819075.1638290958-632873118.1621443750](https://www.mass.gov/doc/massdep-office-of-research-and-standards-guideline-orsg-for-manganese/download?_ga=2.224281821.778819075.1638290958-632873118.1621443750)

**Disinfection** is considered to be one of the most important measures in making drinking water safe and the process of neutralizing harmful micro-organisms that may be found in the water. Disinfection is required by Federal Law for all surface water supplies. Chlorine is the most commonly used chemical for drinking water disinfection. In Manchester, water from Gravelly Pond and the Lincoln Street Well is disinfected with Sodium Hypochlorite, a liquid form of chlorine. Chlorine is often of concern because of its distinct taste and odor and because of reports of the potential health effects of by-products associated with its use. To minimize the taste and odor concerns, the amount of chlorine added to the drinking water is minimized to levels that meet State and Federal regulations.

**Sodium** is a naturally occurring common element found in soil and water. It is necessary for the normal functioning of regulating fluids in human systems. Some people, however, have difficulty regulating fluid volume as a result of several diseases, including congestive heart failure, kidney failure and hypertension. The guideline of 20 mg/L for sodium represents a level in water that physicians and sodium sensitive individuals should be aware of in cases where sodium exposures are being carefully controlled. For additional information contact your health provider, your local board of health or the Massachusetts Department of Public Health, Bureau of Environmental Health Assessment at 617-624-5757.

**Per- and Polyfluoroalkyl Substances** are a group of chemical compounds called **PFAS**. Two PFAS chemicals, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), were extensively produced and are the most studied and regulated of these chemicals. Several other PFAS that are similar to PFOS and PFOA exist. These PFAS are contained in some firefighting foams used to extinguish oil and gas fires. They have also been used in a number of industrial processes and to make carpets, clothing, fabrics for furniture, paper packaging for food and other materials (e.g., cookware) that are resistant to water, grease and stains. Because these chemicals have been used in many consumer products, most people have been exposed to them. While consumer products and food are the largest source of exposure to these chemicals for most people, drinking water can be an additional source of exposure in communities where these chemicals have contaminated water supplies. Such contamination is typically localized and associated with a specific facility, for example, an airfield at which they were used for firefighting or a facility where these chemicals were produced or used. The MassDEP drinking water standard is based on studies of the six PFAS substances in laboratory animals and studies of exposed people. Overall, these studies indicate that exposure to sufficiently elevated levels of the six PFAS compounds may cause developmental effects in fetuses during pregnancy and in breastfed infants. Effects on the thyroid, the liver, kidneys, hormone levels and the immune system have also been reported. Some studies suggest a cancer risk may exist following long-term exposures to elevated levels of some of these compounds. It is important to note that consuming water with PFAS6 above the drinking water standard does not mean that adverse effects will occur. The degree of risk depends on the level of the chemicals and the duration of exposure. The drinking water standard assumes that individuals drink only contaminated water, which typically overestimates exposure, and that they are also exposed to PFAS6 from sources beyond drinking water, such as food. To enhance safety, several uncertainty factors are additionally applied to account for differences between test animals and humans, and to account for differences between people. Scientists are still working to study and better understand the health risks posed by exposure to PFAS. If your water has been found to have PFAS6 and you have specific health concerns, you may wish to consult your doctor.

For the most up-to-date information on all things related to PFAS in the town's drinking water, please visit the town's PFAS web page at: <https://www.manchester.ma.us/777/PFAS>

## Cross-Connection Control and Backflow Prevention

**Manchester Water** makes every effort to ensure that the water delivered to your home and business is clean, safe and free of contamination. Our staff works extremely hard to protect the quality of the water delivered to our customers from the time the water is extracted via deep wells from underground aquifers or withdrawal point from a surface water source, 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 event of a backflow.

### What can I do to help prevent a cross-connection?

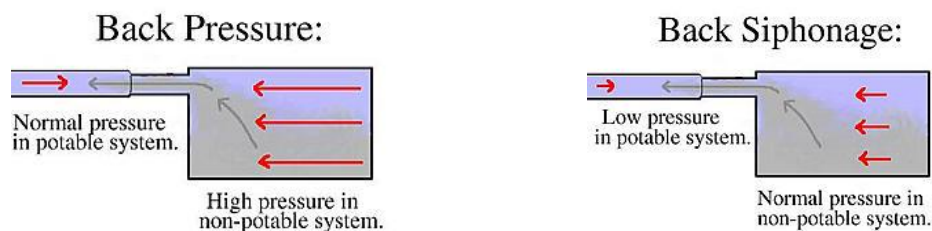
Without the proper protection something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your house. In fact, over half of the country's cross-connection incidents involve unprotected garden hoses. There are very simple steps that you as a drinking water user can 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 in any threaded water fixture. The installation can 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 your water department to schedule a cross-connection survey.

### What is a backflow?

Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This backward flow of water can occur when the pressure created by equipment or a system such as a boiler or air-conditioning is higher than the water pressure inside the water distribution line (back pressure), or when the pressure in the distribution line drops due to routine occurrences such as water main breaks or heavy water demand causing the water to flow backward inside the water distribution system (back siphonage). Backflow is a problem that many water consumers are unaware of, a problem that each and every water customer has a responsibility to help prevent.



## Water Conservation

Water Conservation is an important issue for Manchester. In addition to its importance as a natural resource, wasting it causes additional costs in pumping and treatment, and costs you additional fees on your water bill. Water conservation can also have an impact on the quality of the Town's drinking water. Excessive use causes higher flows, which in turn can cause turbulence in the water mains by churning up sediment, resulting in colored water and reduced pressures. Below are some tips that can help you with your conservation efforts.

- Install water-saving devices: You can save water by installing low-flow showerheads, high-efficiency toilets, and kitchen and bathroom faucet aerators.
- Take shorter showers: Reducing your shower by 1-2 minutes can save as much as 5 gallons!
- Turn water off while brushing your teeth: This can save upwards of 3 gallons!
- Fix leaky faucets: This can save upwards of 20 gallons per day!
- Wash a full load of laundry: This can save 15-50 gallons per load!
- Broom instead of hose: You can save as much as 100 gallons of water by cleaning your driveway with a broom instead of using the hose!
- Water before 8 AM: You can save about 25 gallons each time you water, by watering before 8 AM. Watering early reduces evaporation and puts that water to work, helping your plants and lawn grow.

There are many other steps you can take to reduce your water use.

**Additional information on reducing water is available from the Manchester DPW Office at (978) 526-1242.**

## ADDITIONAL INFORMATION

**Corrosion Control:** Distribution system corrosion is a major concern for the Town. Most of the pipes in the distribution system are over 50 years old, with many over 100. Many of these pipes are made of iron, which over time have begun to rust and corrode. During periods of high flow, the rust can get stirred up causing your drinking water to appear yellow or dirty. The Town treats the water by increasing the pH or reducing the acidity of the water to make it less corrosive and adding a corrosion inhibitor which provides a protective lining on pipes.

**Fluoridation** is the addition of fluoride to drinking water. Fluoridation is added to help prevent tooth decay and promote dental hygiene. The American Dental Association and the American Medical Association both endorse fluoridation as a public health measure. Fluoride is added to Manchester's drinking water at levels recommended by the State Department of Public Health. Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system the fluoride level is adjusted to an optimal level averaging 0.7 part per million to improve oral health in children. The Massachusetts DPH acceptable level is 0.7 ppm. At this level it is safe, odorless, colorless, and tasteless. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the United States who receive the health and economic benefits of fluoridation. Some home water treatment units are available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP. For more information, please call the Manchester Water Department at 978-526-1242 or for additional information on fluoride in drinking water; please contact the Massachusetts Department of Public Health, Office of Oral Health, 617-624-5943. The Town is aware that the EPA is reviewing the practice of adding fluoride to drinking water. If and when any changes are made to the optimal level of fluoride in drinking water, the Town will adjust accordingly, and information will be shared on the Town website as well as this report.