2025 DRINKING WATER QUALITY REPORT

MERRIMAC WATER
DEPARTMENT
4 SCHOOL STREET
MERRIMAC, MA 01860
978-346-8407 PWS ID # 3180000

We encourage you to visit our website at **http://www.townofmerrimac.com** for more information, to pay your water bill and to also sign up for the CodeRED notification system which will notify you of any important issues happening within the water system and other Town related messages.

In accordance with federal drinking water regulations, the Merrimac Water Department has prepared this report to inform consumers on the quality of water provided over the **past calendar year**. In addition to water quality information, this report includes a brief history of the Town and a description of our wells. If you have any questions about this report, please contact James Clark, Superintendent, at the Merrimac Water Plant at 978-346-8417. During nights, weekends, holidays or emergencies, please call 978-346-8321 for assistance. You may also visit the Merrimac Water web Page on the town website: WWW.TOWNOFMERRIMAC.COM/263/WATER-DEPARTMENT

YOUR DRINKING WATER SOURCES

The Merrimac Water Department maintains two **groundwater supply** (well water) sources at two separate locations. The Wallace Way Wellfield (PWS ID # 3180000-04G), which is located off East Main Street, has an approved pumping rate of 240 gallons per minute (gpm). The Bear Hill wellfields (PWS ID # 3180000-02G), which is located off Bear Hill Road on the Newton NH Line, has an approved pumping rate of 280 gpm. The water is treated at each source with four chemicals prior to distribution. Potassium hydroxide is injected to elevate the pH of the water for corrosion control. Potassium Permanganate is used to aid in iron and manganese removal, which tends to cause staining of fixtures. Sodium Hypochlorite (Chlorine) is also added to the water for disinfection against microbial contaminants. And lastly, Ortho Phosphate is added for corrosion control. We filter the water to remove small particles and organisms such as sediment, algae, and bacteria. The quality of water pumped and distributed by the Town meets or surpasses United States Environmental Protection Agency (EPA) and Massachusetts Department of Environmental Protection (MassDEP) primary drinking water guidelines and regulations. The EPA and MassDEP require water to be tested regularly. A certified laboratory performs all tests and the results are reported to MassDEP. Tests for bacterial contamination are performed monthly, whereas tests for other contaminants are performed annually or at a frequency determined by the MassDEP.

PROTECTION OF WATER SOURCES

The Water Department has taken an active approach in protecting its groundwater supply sources. A Zone II Delineation, which estimates the area of contribution for the well, was approved for the Bear Hill-Sargent's Pit Well by the MassDEP in 2001. The Zone II Delineation for Merrimac are primarily a mixture of forest and residential land uses, with a small portion consisting of agriculture activities. Zone II's were completed under the MassDEP's Source Water Assessment and Protection (SWAP) program in July 1999 and December 2000. The SWAP report assesses the susceptibility of the public water supply to potential sources of contamination. MassDEP determined the susceptibility of the Wells to be moderate. Our water sources are protected by gate access to authorized personnel only.

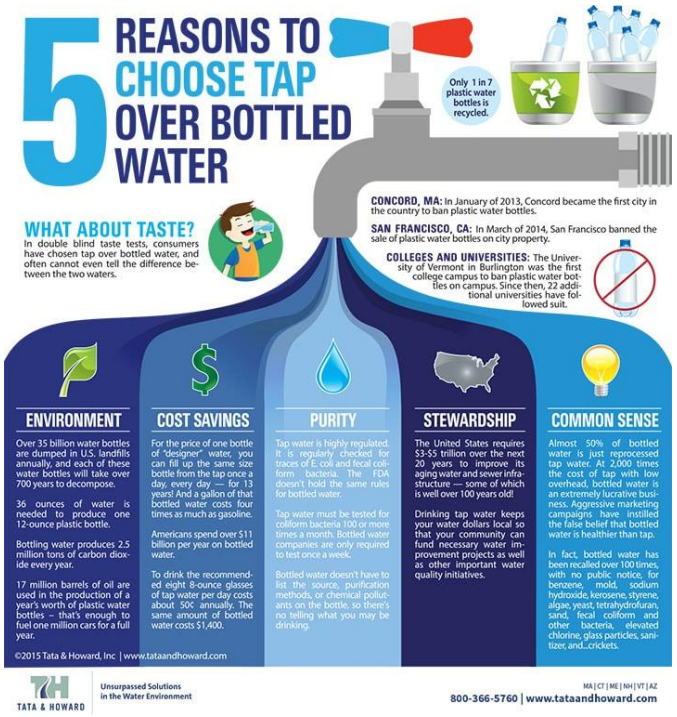
In addition, the SWAP reports recommended that the Town make two amendments to the Groundwater Protection District Bylaw that was adopted in 1994. These changes include providing specific language within the Bylaw prohibiting landfilling of wastewater and septage residuals from the Zone II and prohibiting expansion of impervious surface on exiting nonresidential land within Zone II so that the impervious surfaces are not greater than 10% of the lot size. The complete SWAP report can be reviewed online at **https://www.mass.gov/doc/merrimac-water-department-swap-report/download** Hardcopies can be found at the Merrimac Water Department Business office at 4 School Street, lower Level.

Bottle vs Tap

The bottled water industry has been trying to convince consumers that all water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent according to government estimates). The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children.

Further, the FDA completely exempts bottled water that is packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to $1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you would pay for bottled water.



SUBSTANCES FOUND IN DRINKING 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, or 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 that 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.

Lead - 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 Merrimac Water Department 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 mg/L (micrograms 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 ten 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 on this webpage: **https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_magnese_dwreport_0.pdf**. and MassDEP Office of Research and Standards Guideline (ORSG) for Manganese: **http://www.mass.gov/eea/docs/dep/water/drinking/alpha/i-thru-z/mangorsg.pdf**
For more information go to: **http://www.mass.gov/eea/docs/dep/water/drinking/alpha/i-thru-z/mangfactsheet.pdf**

In order to ensure that tap water is safe to drink, EPA and MassDEP prescribe regulations that limit the number of certain contaminants in water provided by public water systems. FDA and Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

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).

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 at 1-800-426-4791.

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.

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

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

Parts Per Million (ppm) – This unit is equivalent to one milligram per liter (mg/L). One part per one million is equal to:

- One minute in two years
- One penny in $10,000
- One ounce in 82,500 pounds

Parts Per Billion (ppb) – Micrograms per liter (ug/L).
Picocuries Per Liter (pCi/L) - (a measure of radioactivity)

Maximum Residual Disinfectant Level Goal (MRDLG) – The level of a drinking water disinfectant below which there is no known or expected risk to health.
Maximum Residual Disinfectant Level (MRDL) – The highest level of disinfectant (chlorine) allowed in drinking water.

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.

Lead and Copper 90th Percentile – Out of every 10 homes sampled, 9 were at or below this level. This number is compared to the action level to determine lead and copper compliance.

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

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.

COMPLIANCE IN 2025

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.

MONITORING WAIVERS

MassDEP reduced our monitoring requirements for Lead and Copper in 2007 after 3 years of monitoring that showed the levels remained below action levels. In 2023 new wells were added at the Bear Hill Pumping station. This changed our monitoring to semiannual. After a year on below action level for 2025, we are now on Annual monitoring for Lead and Copper Sampling.

WATER QUALITY TESTING RESULTS

The following results for Lead and Copper are from sampling done in 2025 (next testing is Summer 2026) or during the most recent monitoring period for each contaminant group tested in accordance with the regulations. Only the detected contaminants are shown.

	Date(s) Collected	90TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	4/4/25-4/8/25	.0008	0.015	0	**20**	**NONE**	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	4/4/25-4/8/25	0.220	1.3	1.3	**20**	**NONE**	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
	Date(s) Collected	90TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	10/1/25-10/3/25	.0016	0.015	0	**20**	**NONE**	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	10/1/25-10/3/25	0.302	1.3	1.3	**20**	**NONE**	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Turbidity	TT	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Daily Compliance (NTU)	**5**	**-----**	**.10**	**N**	**Soil runoff**
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.					
*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 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
Inorganic Contaminants							
Nitrate (ppm)	04/02/2025	0.58	0.20-0.58	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Volatile Organic Contaminants							
Benzene (ppb)	07/02/2025	ND	ND	5	0	**N**	Discharge from factories; leaching from gas storage tanks and landfills
Carbon tetrachloride (ppb)	07/02/2025	ND	ND	5	0	**N**	Discharge from chemical plants and other industrial activities
o-Dichlorobenzene (ppb)	07/02/2025	ND	ND	600	600	**N**	Discharge from industrial chemical factories
1,2-Dichloroethane (ppb)	07/02/2025	ND	ND	5	0	**N**	Discharge from industrial chemical factories

1,1-Dichloroethylene (ppb)	07/02/2025	ND	ND	7	7	**N**	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene (ppb)	07/02/2025	ND	ND	70	70	**N**	Breakdown product of trichloroethylene and tetrachloroethylene
trans-1,2-Dichloroethylene (ppb)	07/02/2025	ND	ND	100	100	**N**	Discharge from industrial chemical factories
Dichloromethane (ppb)	07/02/2025	ND	ND	5	0	**N**	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane (ppb)	07/02/2025	ND	ND	5	0	**N**	Discharge from industrial chemical factories
Ethylbenzene (ppb)	07/02/2025	ND	ND	700	700	**N**	Leaks and spills from gasoline and petroleum storage tanks
Styrene (ppb)	07/02/2025	ND	ND	100	100	**N**	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene (PCE) (ppb)	07/02/2025	ND	ND	5	0	**N**	Discharge from factories and dry cleaners; residual of vinyl-lined water mains
1,2,4-Trichlorobenzene (ppb)	07/02/2025	ND	ND	5	5	**N**	Discharge from textile-finishing factories
1,1,1-Trichloroethane (ppb)	07/02/2025	ND	ND	200	200	**N**	Discharge from use in septic system cleaners
1,1,2-Trichloroethane (ppb)	07/02/2025	ND	ND	5	3	**N**	Discharge from industrial chemical factories
Trichloroethylene (TCE) (ppb)	07/02/2025	ND	ND	5	0	**N**	Discharge from metal degreasing sites and other factories
Toluene (ppm)	07/02/2025	ND	ND	1000	1000	**N**	Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories
Vinyl Chloride (ppb)	07/02/2025	ND	ND	2	2	**N**	Leaching from PVC piping; discharge from plastics factories
Xylenes (ppm)	07/02/2025	ND	ND	10000	10000	**N**	Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories; discharge from chemical factories
Disinfectants and Disinfection By-Products							
Total Trihalomethanes (TTHMs) (ppb)	08/06/2025	28	22-28	80	N/A	**N**	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	08/06/2025	10	10-12	60	N/A	**N**	Byproduct of drinking water disinfection

Unregulated Contaminant	Date(s) Collected	Result or Range Detected (ppt)	ORSG	Possible Source(s) of Contamination	Health Effects
Per- and Polyfluoroalkyl Substances (PFAS)					
PFHXS	2025	BDL-.41	20	Manmade chemical; used as a surfactant to make fluoropolymers, in water and stain-protective coatings for carpets, paper, and textiles in consumer products, such as food contact papers, waterproofing agents, cleaning and polishing products and in firefighting foams; also, an impurity from industrial production processes.	Based on studies of laboratory animals and chemical similarity to PFOS and PFOA, depending on the level and length of exposure, PFHxS in drinking water may affect the liver, cholesterol levels, thyroid, and immune system and may cause developmental effects.
PFOS	2025	BDL-.96	20	Surfactant or emulsifier; used in fire-fighting foam, circuit board etching acids, alkaline cleaners, floor polish, and as a pesticide active ingredient for inset bait traps; U.S. manufacture of PFOS phased out in 2002; however, PFOS still generated incidentally.	Exposure to PFOS in drinking water may affect the liver and cholesterol and thyroid hormone levels. Some studies indicate that exposures to elevated levels of PFOS could cause immunological effects, developmental effects, and some types of cancer in laboratory animals and in people.
PFOA	2025	BDL-3.07	20	Used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon), fire-fighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives, and photographic films.	Exposure to PFOA in drinking water may affect the liver and cholesterol and thyroid hormone levels. Some studies indicate that exposures to elevated levels of PFOA could cause immunological effects, developmental effects, and some types of cancer in laboratory animals and in people.
PFAS6(TOP 6)	2025	BDL-3.07	20	Used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon), fire-fighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives, and photographic films.	Exposure to PFOA in drinking water may affect the liver and cholesterol and thyroid hormone levels. Some studies indicate that exposures to elevated levels of PFOA could cause immunological effects, developmental effects, and some types of cancer in laboratory animals and in people.

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BACKFLOW PREVENTION

As your drinking water supplier, the Merrimac Water Department is concerned about the possible introduction of contaminants to the drinking water from the sources we supply water to. Most outside contamination takes place when the customer uses equipment that re-pressurizes the water supplied, or when negative pressures occur in the water supply mains, as with a water main that breaks. Typically, most water suppliers have a backflow prevention program in place that addresses this problem with commercial and industrial customers. These customers use their water supply for many purposes with a potential for cross contamination, the Water Department closely monitors these services and often requires special testable devices be placed in their water supply piping to prevent contamination. This concern doesn't end with commercial and industrial customers. Residential customers must concern themselves with potential contamination. Permanent irrigation systems require the installation of a backflow prevention device. Lawns are typically treated with composted materials and/or chemical fertilizers. In the event of a flow reversal, water exposed to the aforementioned contaminants could be introduced to the household and possibly the water distribution system. Another potential source of contamination is the newer aspirator devices that are sold to apply insecticides and fertilizers. These devices connect to a hose and the velocity of the water draws the concentrated chemical up to a mixing area that becomes a spray. Most of these units are supplied with a check valve. However, these devices are easily fouled and can result in failure.

WATER CONSERVATION

In the case when a mandatory water ban is to be instituted, the following guidelines are to be followed:
RESTRICTED WATER USES

A declaration of a State of Water Supply Conservation shall include one or more of the following restrictions, conditions, or requirements limiting the use of water as necessary to protect the water supply. The applicable restrictions, conditions or requirements shall be included in the public notice required under section 6.

a) Odd/Even Day Outdoor Watering Outdoor watering by water users with odd numbered addresses is restricted to odd numbered days. Outdoor watering by users with even numbered addresses is restricted to even numbered days. Any watering during odd/even day outdoor watering is restricted to 7:00-9:00AM and 7:00-9:30PM.

b) Outdoor Watering Ban Outdoor watering is prohibited, unless in conformance with above restrictions.

c) Outdoor Watering Hours Outdoor water is permitted only during daily periods of low demand, to be specified in the declaration of a State of Water Supply Conservation and public notice thereof.

d) Filling Swimming Pools Filling of swimming pools is prohibited.

e) Automatic Sprinkler Use The use of automatic sprinkler systems is prohibited.

Your cooperation in this effort is greatly appreciated.