

2017 Annual Drinking Water Quality Report

For

Merrimac Water Department Merrimac, Massachusetts MASSDEP PWSID # 3180000

This report is a snapshot of drinking water quality that we 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 information because informed customers are our best allies.

I. PUBLIC WATER SYSTEM INFORMATION

Address 4 School St. Merrimac MA 01860

Contact Person: Gary D. Tuck Jr.

Telephone #: 978-346-8407

Fax #: 978-346-8407

Internet Address:

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. As part of our ongoing commitment to you, last year we made the following improvements to our system. Water Booster Stations and new water Main to feed Booster stations were installed on Union St. Ext. and Attitash Ave. to improve water pressure in certain areas. These should go online in 2018. New Water Main was also installed on Bear hill Rd. from East Main St. to Abbey Rd.

Opportunities for Public Participation

If you would like to participate in discussions regarding your water quality, you may attend the following meetings or educational events: Public Power Week/ First week in October.

2. YOUR DRINKING WATER SOURCE

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
East Main St.	3180000-04G	Groundwater	Wallace way
Bear hill	3180000-02G	Groundwater	Sargents Pit

Is My Water Treated?

We add Potassium Hydroxide for PH adjustment.

We add Potassium Permanganate to aid in Iron and Manganese removal.

We add Sodium Hypochlorite for disinfection.

We add Ortho Phosphate for corrosion control.

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- We add a disinfectant to protect you against microbial contaminants.
- We filter the water to remove small particles and organisms such as Iron and Manganese.
- We chemically treat the water to reduce levels of iron and manganese.

The water quality of our system is constantly monitored by us and MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

How Are These Sources Protected? Our water sources are protected by gate access to authorized personnel only. MassDEP has prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving this water system. The SWAP Report assesses the susceptibility of public water supplies.

What is My System’s Ranking?

A susceptibility ranking of *Moderate* was assigned to this system using the information collected during the assessment by MassDEP.

Where Can I See The SWAP Report?

The complete SWAP report is available at the Merrimac Water Dept., Board of Health, and online at <http://www.mass.gov/dep/water/drinking/sourcewa.htm#reports> . For more information, call the Merrimac Water Dept. at 978-346-8407

3. 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 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. 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. [INSERT THE NAME OF YOUR UTILITY] 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>.

4. 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.

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 or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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

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

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

Variations and Exemptions – State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

ppm = parts per million, or milligrams per liter (mg/l)
ppb = parts per billion, or micrograms per liter (ug/l)
NTU = Nephelometric Turbidity Units
ND = Not Detected
N/A = Not Applicable

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

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.

5. WATER QUALITY TESTING RESULTS

What Does This Data Represent?

The water quality information presented in the table(s) 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)

	Highest # Positive in a month	MCL	MCLG	Violation (Y/N)	Possible Source of Contamination
Total Coliform	None	1	0	N	Naturally present in the environment
Fecal Coliform or <i>E.coli</i>	None	*	0	N	Human and animal fecal waste

* Compliance with the Fecal Coliform/E.coli MCL is determined upon additional repeat testing.

Turbidity	TT	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Daily Compliance (NTU)	5	-----	.25	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							
Antimony (ppb)	6/1/2017	ND	ND	6	6	N	Discharge from fire retardants; ceramics; electronics; solder
Arsenic (ppb)	6/1/2017	ND	ND	10	-----	N	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	6/1/2017	0.0085	0.0023-0.0085	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium (ppb)	6/1/2017	ND	ND	4	4	N	Discharge from electrical, aerospace, and defense industries; erosion of natural deposits
Cadmium (ppb)	6/1/2017	ND	ND	5	5	N	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (ppb)	6/1/2017	ND	ND	100	100	N	Discharge from pulp mills; erosion of natural deposits
Cyanide (ppb)	6/1/2017	ND	ND	200	200	N	Discharge from metal factories; discharge from plastic and fertilizer factories
Fluoride (ppm) ■	6/1/2017	ND	ND	4	4	N	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

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
Mercury (ppb)	6/1/2017	ND	ND	2	2	N	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nitrate (ppm)	6/1/2017	0.61	0.45-0.61	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Nitrite (ppm)	6/1;/2017	ND	ND	1	1	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Perchlorate	8/3/2017	0.225	0.166-0.225	2	N/A	N	Rocket propellants, fireworks, munitions, flares, blasting agents
Selenium (ppb)	6/1/2017	ND	ND	50	50	N	Discharge from metal refineries; erosion of natural deposits; discharge from mines
Thallium (ppb)	6/1/2017	ND	ND	2	0.5	N	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Volatile Organic Contaminants							
Benzene (ppb)	8/3/2017	ND	ND	5	0	N	Discharge from factories; leaching from gas storage tanks and landfills
Carbon tetrachloride (ppb)	8/3/2017	ND	ND	5	0	N	Discharge from chemical plants and other industrial activities
o-Dichlorobenzene (ppb)	8/3/2017	ND	ND	600	600	N	Discharge from industrial chemical factories
1,2-Dichloroethane (ppb)	8/3/2017	ND	ND	5	0	N	Discharge from industrial chemical factories
1,1-Dichloroethylene (ppb)	8/3/2017	ND	ND	7	7	N	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene (ppb)	8/3/2017	ND	ND	70	70	N	Breakdown product of trichloroethylene and tetrachloroethylene
trans-1,2-Dichloroethylene (ppb)	8/3/2017	ND	ND	100	100	N	Discharge from industrial chemical factories
Dichloromethane (ppb)	8/3/2017	ND	ND	5	0	N	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane (ppb)	8/3/2017	ND	ND	5	0	N	Discharge from industrial chemical factories
Ethylbenzene (ppb)	8/3/2017	ND	ND	700	700	N	Leaks and spills from gasoline and petroleum storage tanks
MTBE - Methyl Tertiary Butyl Ether (ppb)	8/3/2017	ND	ND	ORS GL 70	-	N	Fuel additive; leaks and spills from gasoline storage tanks
Styrene (ppb)	8/3/2017	ND	ND	100	100	N	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene (PCE) (ppb)	8/3/2017	ND	ND	5	0	N	Discharge from factories and dry cleaners; residual of vinyl-lined water mains

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
1,2,4-Trichlorobenzene (ppb)	8/3/2017	ND	ND	70	70	N	Discharge from textile-finishing factories
1,1,1-Trichloroethane (ppb)	8/3/2017	ND	ND	200	200	N	Discharge from use in septic system cleaners
1,1,2-Trichloroethane (ppb)	8/3/2017	ND	ND	5	3	N	Discharge from industrial chemical factories
Trichloroethylene (TCE) (ppb)	8/3/2017	ND	ND	5	0	N	Discharge from metal degreasing sites and other factories
Toluene (ppm)	8/3/2017	ND	ND	1	1	N	Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories
Vinyl Chloride (ppb)	8/3/2017	ND	ND	2	0	N	Leaching from PVC piping; discharge from plastics factories
Xylenes (ppm)	8/3/2017	ND	ND	10	10	N	Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories; discharge from chemical factories

6. COMPLIANCE WITH DRINKING WATER REGS

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.

Health Effects Statements Drinking Water Violations

7. EDUCATIONAL INFORMATON

Do I Need To Be Concerned About Certain Contaminants Detected In My Water?

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Merrimac Water Dept. 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>.