



MCI Shirley

2019

PWS ID: #2270001

REPORT ON WATER QUALITY

This is MCI Shirley's annual report to you on water quality. The statistics in this report are based on testing done throughout 2019 and prior years. We hope you will find it helpful to know the sources of your water and the process by which safe drinking water is delivered to you.

Where Does My Water Come From?

MCI Shirley is considered to be a "consecutive" water system, that is, it receives its water from another public water supply. In this case, the Devens Water System (PWS #2019001) supplies water from a booster connection. In addition, MCI Shirley also has two wells which were put online in 1976. These wells have the potential to produce up to 90% of the water supply.

Maintaining Water Quality

MCI Shirley continuously strives to produce the highest quality water possible to meet or surpass every water quality standard. We monitor both our sources and distribution system very closely. 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.

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

SHOULD SOME PEOPLE TAKE SPECIAL PRECAUTIONS?

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 (800-426-4791).

Water Treatment

We make every effort to provide you with safe and pure drinking water. MCI Shirley's raw water contains levels of arsenic, iron and manganese that are common in New England water. To improve the quality of the water delivered to you, our water is treated with sodium hypochlorite for oxidation prior to green sand filtration and disinfection, poly-orthophosphate for corrosion control via sequestration and coating mains, and potassium hydroxide for pH adjustment.

Devens chlorinates its water and treats it for corrosion control which consists of adding sodium hexametaphosphate to the water which results in a chemical reaction known as sequestration and prevents iron and manganese from forming nuisance particles. A phosphate treatment also provides a coating to distribution mains that reduces corrosion. An additional new process for corrosion control is the addition of potassium hydroxide (KOH) to raise the pH of the water chemistry to bring our water up to a less corrosive state that is neutral or slightly alkaline.

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

MCI Shirley

The water system at MCI Shirley is operated and maintained by WhiteWater, Inc. If you have any questions about this report, please contact Chris Culberson at 1-888-377-7678.

Additional copies of this report are available upon request and at www.whitewateronline.com



Distribution System Characteristics of MCI Shirley

This report summarizes only those items detected during sampling - not all contaminants that are monitored.

Microbial Results	Highest # Positive in a Month	Total # Positive	MCL	MCLG	Violation	Possible Source of Contamination
Total Coliform	0	0	1	0	No	Naturally present in the environment
E. Coli	n/a	0	*	0	No	Human and animal fecal waste

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

Total Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system.

Lead & Copper	Date(s) Collected	90th Percentile of Sample	Action Level	MCLG	# of Sites sampled	# of Sites Above Action Level	Exceeds Action Level?	Possible Source of Contamination
Lead (ppb)	2017	0	15	0	20	0	No	Corrosion of household plumbing systems
Copper (ppm)		0.202	1.3	1.3		0	No	Corrosion of household plumbing systems

Regulated Contaminants	Date(s) Collected	Highest Detect Value	Range Detected	MCL	MCLG	Violation	Possible Source of Contamination
Inorganic Contaminants							
Arsenic (ppb)	Quarterly 2019	1	ND-1	10	-	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	4/30/19	0.01	n/a	2	2	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Nitrate (ppm)	4/30/19	0.38	n/a	10	10	No	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Perchlorate (ppm)	7/19/17	0.076	n/a	2	N/A	No	Rocket propellants, fireworks, munitions, flares, blasting agents.

Radioactive Contaminants							
Gross Alpha (pCi/L)	9/28/16	3.9	3.5-3.9	15	0	No	Erosion of natural deposits
Disinfection By-Products							
Chlorine (ppm)	Monthly 2019	0.71*	0.41-0.91	4	4	No	Water additive used to control microbes
Total Trihalomethanes (TTHMs) (ppb)	8/30/19	8.9*	n/a	80	-	No	By-product of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	8/7/18	7.5*	n/a	60	-	No	By-product of drinking water chlorination

*Highest Running Annual Average, but for TTHMs and HAA5, we are not required to test regularly, so the results are for one quarter only.

Unregulated Contaminants	Date(s) Collected	Result or Range Detected	Average	SMCL	ORSG or Health Advisory	Possible Source of Contamination
Inorganic Contaminants						
Sodium (ppm)	4/30/19	42	n/a	-	20	Natural sources; runoff from use as salt on roadways
Sulfate (ppm)	9/28/16	15-20	17.5	250	-	Natural sources
Manganese (ppb)***	2015	ND-57	28.5	50	300**	Erosion of natural deposits

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

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 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 care provider, your local board of health or the Massachusetts Department of Public Health, Bureau of Environmental Health Assessment at 617-624-5757.

Cross Connection Control and Backflow Protection in your water system

A Cross Connection means any actual or potential physical connection or arrangement between a pipe conveying potable water from a public water system and any non-potable water supply, piping arrangement or equipment including, but not limited to, waste pipe, soil pipe, sewer, drain, other unapproved sources. MCI Shirley recommends the installation of Hose Bibb type vacuum breakers on all outside faucets. This will protect all residents from the potential of backflow into their homes and the potable water system from a hose connection. Studies have shown that hoses are the most commonly unprotected cross connection. The MassDEP requires the physical separation between the public water supply to your home and a private well used for irrigation or other purposes, these instances will be monitored for compliance. For more information please contact Russell Tierney, Cross Connection Coordinator, WWI at 888-377-7678.



Typical Hose Bibb Vacuum Breaker

Distribution System Characteristics of Devens Water System

Regulated Contaminants	Date(s) Collected	Highest Result	Range Detected	MCL	MCLG	Violation	Possible Source of Contamination
Inorganic Contaminants							
Arsenic (ppb)	2018	6	ND-6	10	-	No	Erosion of natural deposits
Barium (ppm)	2019	0.02	n/a	2	2	No	Erosion of natural deposits
Nitrate (ppm)	2019	0.68	ND-0.68	10	10	No	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Perchlorate (ppb)	2019	0.07	0.06-0.1	2	-	No	Rocket propellants, fireworks, munitions, flares, blasting agents
Disinfection By-Products							
Chlorine (ppm)	2019	0.38*	0.11-0.9	4	4	No	Water additive to control microbes

*Highest Running Annual Average of four consecutive quarters

Unregulated Contaminants	Date(s) Collected	Result or Range	Average	SMCL	ORSG or Health Advisory	Possible Source of Contamination
Inorganic Contaminants						
Sodium (ppm)	2019	88	n/a	-	20	Natural sources; runoff from road salt
Sulfate (ppm)	2019	7.5-17	12	250	-	Natural sources
PFOS, PFOA, PFNA, PFHxS, FPHpA (ppt) (total combined)	2019	0-32	14	-	70	Man-made chemicals. Used as surfactants to make products stain or water resistant, in fire-fighting foam, for industrial purposes, and as a pesticide. Used in fluoropolymers (such as Teflon), cosmetics, greases and lubricants, paints, adhesives and photographic films.
Perfluorohexanoic acid (PFHxA) (ppt)	2019	0-8	3.2	-	-	Directly emitted to the environment or are formed indirectly from the environmental degradation or metabolism of precursor substances. Some are or have been used in a wide variety of industrial and consumer applications.
Manganese (ppb)***	2019	0-371	119	50	300**	Erosion of natural deposits

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

*****Manganese** is a naturally occurring mineral found in rocks, soil and groundwater and surface water. The USEPA and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 0.05 mg/L (50 micrograms per liter (µg/L) or 50 parts per billion (ppb)). At levels, greater than 0.05 mg/L, the water may appear brown, taste unpleasant and may leave black stains on bathroom fixtures and laundry. While manganese is part of a healthy diet, it can be harmful if consumed in large concentrations.

Manganese is a nutrient that is part of a healthy diet. Drinking water may naturally have manganese, and when concentrations are greater than 50µg/L, the water may be discolored and taste bad. Over a lifetime, the US EPA recommends that people drink water with manganese levels less than 300 µg/L and over the short term, US EPA recommends that people limit their consumption of water with levels over 1000 µg/L, primarily due to concerns about possible neurological effects. Children up to 3 years of age should not be given water with manganese over 300 µg/L, nor should formula for infants be made with that water.

SOME TERMS DEFINED

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

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

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's 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.

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

Total Coliform: A bacteria that indicates other potentially harmful bacteria may be present.

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.

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

Key to Tables

- ppm – Parts per million, corresponds to one penny in \$10,000
- ppb – Parts per billion, corresponds to one penny in \$10,000,000
- pCi/L – Picocuries per liter (a measure of radioactivity)
- ND – Not detected
- n/a - not applicable
- RAA –Running annual average
- TT—Treatment technique

TESTING FOR 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. **MCI Shirley** 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>.

Source Water Protection

The MassDEP has prepared a Source Water Assessment Program (SWAP) Report for the water supply source serving MCI Shirley. The report assesses the susceptibility of public water supplies to contamination and makes recommendations.

This report is available from the MassDEP website: <http://www.mass.gov/eea/docs/dep/water/drinking/swap/cero/2270001.pdf>.

A susceptibility ranking of **high** was assigned to all wells in our system by the MassDEP and they meet all US Environmental Protection Agency (EPA) and MassDEP drinking water quality standards.

Be assured that MCI Shirley in concert with its certified operator, WhiteWater, Inc., is addressing the concerns as stated in the SWAP Report and welcomes your input to our planning. If you have any questions, please contact WhiteWater, Inc., at 1-888 377-7678.

Opportunities to Participate

If you have any matters or concerns with your drinking water supply, please contact our current Certified Operator, WhiteWater, Inc., at 1-888-377-7678.

FOR YOUR INFORMATION

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 to 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).

Where to go for more information

Massachusetts Department of Environmental Protection (MassDEP)

<http://www.mass.gov/eea/agencies/massdep/water/drinking/>



SOURCE WATER CHARACTERISTICS

The sources of drinking water in the United States (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 storm water 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 storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production. These contaminants can also come from gasoline storage, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.