CASTINE WATER DEPARTMENT
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PWSID ME0090330

2022 ANNUAL CONSUMER CONFIDENCE REPORT

INTRODUCTION

The Federal Safe Drinking Water Act requires all community water systems to distribute an annual water quality report to its customers. This is the 2022 annual water quality report of the Castine Water Department, which covers the period from January 1, 2022 through December 31, 2022. This annual report is intended to provide you with important information about your drinking water. We know that you count on the Castine Water Department for a safe and reliable supply of water everyday, and we are committed to providing the highest quality of service to you. There were no violations during 2022.

WATER QUALITY

The Safe Drinking Water Act mandates that the State of Maine, along with the Environmental Protection Agency (EPA), establish and enforce minimum drinking water quality standards. These standards set limits on certain biological, radioactive, organic and inorganic substances sometimes found in drinking water. The limits set on these substances are known as Maximum Contaminant Levels (MCL's). Two types of standards have been established. Primary Standards set required levels of drinking water quality to protect your health. Secondary Standards provide guidelines regarding the taste, odor, color, and other aesthetic aspects of your drinking water which do not present a health risk. The Castine water quality is within the levels established by EPA and the State of Maine for all Primary Standards.

Responsibility for maintaining water quality resides with the Castine Water Department staff. The Castine Water Department includes operators that are licensed by the State of Maine Department of Health and Human Services. We ensure that your water is safe through regular testing for total coliform bacteria, turbidity, arsenic, pH, phosphate, alkalinity, disinfection byproducts, and chlorine. These tests are conducted by the Maine State Health and Environmental Testing Laboratory, other private laboratories, and the Castine Water Department.

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 the water poses a human health risk. Contaminants that may be present in source water include: (1) microbial contaminants, such as viruses and bacteria, which may come from sewage or wildlife; (2) inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, or farming; (3) pesticides and herbicides, which may come from a variety of sources such as agriculture, stormwater runoff, and residential uses; (4) organic chemical contaminants, including synthetic and volatile organic chemicals, which can come from gas stations, runoff, and septic systems and (5) radioactive contaminants which can be naturally occurring. 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 (1-800-426-4791) or online: https://www.epa.gov/ccr/forms/contact-us-about-consumer-confidence-reports

Table 1 lists regulated testing conducted by the Castine Water Department for which results were obtained in 2022. The most recent result is also included for contaminants which are not tested annually. All other tested and regulated drinking water contaminants were below detection levels. This testing is required by the State of Maine Drinking Water Program (DWP) and must be reported to all customers on an annual basis:

TABLE 1: 2022 REQUIRED CASTINE TESTING RESULTS

CONTAMINANT	DATE	CASTINE RESULTS	EPA LIMIT	EPA GOAL	SOURCE
MICROBIOLOGICAL					
Total Coliform	Monthly Testing	0 Positive Results	1 Positive Result	0 Positive Results	Naturally present in the environment.
Turbidity	Continuous Testing	0.14 NTU (0.05 – 0.23 NTU)	1 NTU 95% 5 NTU 100%	0.3 NTU	Naturally present in the environment.
INORGANICS					
Barium	4/6/22	0.0022 ppm	2 ppm	2 ppm	Erosion of natural deposits.
Nitrate	4/6/2022	0.78 ppm	10 ppm	10 ppm	Runoff from fertilizer use. Leaching from septic systems. Erosion of natural deposits.
Copper 90th Percent Value	Summer 2020	0.056 ppm	1.3 ppm	1.3 ppm	Corrosion of household plumbing systems.
Lead 90th Percent Value	Summer 2020	2.2 ppb	15 ppb	0 ppb	Corrosion of household plumbing systems.
RADIONUCLIDES					
Combined Radium	12/13/22	0.48 pCi/L	5 pCi/L	0 pCi/L	Erosion of natural deposits.
Radium-226	12/13/22	0.21 pCi/L	5 pCi/L	0 pCi/L	Erosion of natural deposits.
Radium-228	12/13/22	0.274 pCi/L	5 pCi/L	0 pCi/L	Erosion of natural deposits.
SYNTHETICS					
PFAS – Battle Ave Raw Water	9/8/21	2.1 ppt	20 ppt	-	Household products, fabrics, cookware and cleaners.
PFAS – Battle Ave Filtered Water	10/26/21	0 ppt	20 ppt	-	Household products, fabrics, cookware and cleaners.
PFAS – Wadsworth Cove	10/26/21	0 ppt	0 ppt	-	Household products, fabrics, cookware and cleaners.
PFAS – British Canal	10/26/21	0 ppt	0 ppt	-	Household products, fabrics, cookware and cleaners.
PFAS – Spring Street	10/26/21	0 ppt	0 ppt	-	Household products, fabrics, cookware and cleaners.
DISINFECTANTS AND DISINFECTION BYPRODUCTS					
Total Trihalomethanes	9/5/22	9.2 ppb	80 ppb	0 ppb	Byproduct of drinking water chlorination.
Haloacetic Acids	9/5/22	0 ppb	60 ppb	0 ppb	Byproduct of drinking water chlorination.
Chlorine Residual	Monthly Testing	0.34 ppm (0.25-0.45 ppm)	4.0 ppm	4 ppm	Drinking water chlorination

Definitions:

- Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water.
- Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health.
- Running Annual Average (RAA): The Average of all quarterly samples for the last year at all sample locations.
- Action Level (AL): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
- Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant 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 below which there is no known or expected risk to health. MRDLGs 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.
- Interim standard: The State of Maine has established an interim standard for PFAS of 20 parts per trillion (ppt).

Units:

ppm = parts per million or milligrams per liter (mg/L)
ppb = parts per billion or micrograms per liter (µg/L)
ppt = parts per trillion or nanograms per liter (ng/L)
pCi/L = picocuries per liter
pos = positive samples
NTU = nephelometric turbidity units

Notes:

1) Total Coliform Bacteria: Reported as the highest monthly number of positive samples, for water systems that take < 40 samples per month.
2) Lead/Copper: Action levels (AL) are measured at consumer's tap. 90% of the tests must be equal to or below the action level.
3) TTHM/HAA: Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA) are formed as a by-product of drinking water chlorination. This chemical reaction occurs when chlorine combines with naturally occurring organic matter in water.
4) Nitrate: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask advice from your health provider.
5) PFAS: The degree of risk depends on the level of chemicals and duration of exposure. Lab studies of animals exposed to high doses of PFAS have shown numerous negative health effects such as issues with reproduction, growth and development, thyroid function, immune system, neurology, as well as injury to the liver. Research is still relatively new, and more needs to be done to fully assess exposure effects on the human body.

The data presented in Table 1 demonstrates that the Castine Water Department has been in complete compliance with the requirements for bacteria sampling and has not experienced any positive results for Total Coliform. Total Coliform is used as an indicator parameter for water supply bacterial contamination. This data also shows that the Water Department is in compliance with Barium, Nitrate, Radionuclides, Turbidity, and Disinfectants and Disinfection Byproducts. The Water Department tested during the summer months for lead and copper at ten homes. Copper testing in 2020 was in complete compliance with a result of 0.056 ppm as compared to the EPA limitation of 1.3 ppm. The lead sampling was also in compliance. The 2020 lead testing was 2.2 ppb versus an EPA standard of 15 ppb. The next round of lead and copper testing will occur in 2023. 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 Castine 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.

SOURCE WATER ASSESSMENT

The sources of drinking water can include rivers, lakes, ponds, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material and can pick up substances resulting from human or animal activity. The DWP has evaluated all public water supplies as part of the Source Water Assessment Program (SWAP). The assessments included geology, hydrology, land uses, water testing information, and the extent of land ownership or protection by local ordinance to see how likely our drinking water source is to being contaminated by human activities in the future. Assessment results are available at the DWP. For more information about the SWAP, please contact the DWP at telephone 287-2070.

WATER SUPPLY/DISTRIBUTION INFORMATION

The Water Department has been obtaining water from three groundwater wells and one horizontal surface water collection system. The Spring Street well is located near the intersection of Spring and Court Streets. The water undergoes air stripping to remove acidic carbon dioxide before sodium hypochlorite (chlorine bleach – for disinfection) and poly-phosphate (corrosion inhibitor) are added. The British Canal well is located off Wadsworth Cove Road and the water is treated with sodium hypochlorite and a corrosion inhibitor. The Wadsworth Cove (350 well) is located off of Wadsworth Cove Road. The water flows through two arsenic removal exchange media systems before being treated with sodium hypochlorite and a corrosion inhibitor. The Battle Avenue horizontal pond collection system is located at the site of the former surface water treatment system. The surface water treatment process begins with natural sand to filter pond water before a pre-filter, then two cartridge filters in series, then sodium hypochlorite is added before contact time, followed by soda ash addition (to increase the pH), and finally corrosion inhibitor addition. In 2022, these four sources produced a total of 19,457 million gallons with an average daily production of 53,307 gallons. There is one 612,000-gallon concrete storage reservoir in Witherle Woods that can supply water for up to several days during average use to the community. The reservoir also is used for peak fluctuations in the system during hydrant flushing and for fire protection. The Department maintains 47 hydrants throughout the distribution system for flushing and fire protection.

SOURCE WATER PROTECTION

In 2009, the Town adopted a source water protection ordinance to help prevent source contamination.

WAIVER INFORMATION

In 2020, our system was granted a 'Synthetic Organics Waiver.' This is a three year exemption from the monitoring and reporting requirements for the following industrial chemical(s): toxaphene-chlordane-PCB, herbicides and semi-volatile organics. This waiver was granted due to the absence of these potential sources of contamination within a half mile radius of the water source(s).

SYSTEM IMPROVEMENTS/HIGHLIGHTS

In 2022, the Water Department continued using the recently upgraded Battle Avenue filter system to supplement the three existing groundwater sources, especially during late summer, when groundwater levels were low and demand was high. We were able to meet demand, keep the reservoir near full without hauling water or needing to impose strict water use restrictions.

CONTACT INFORMATION

This report is a summary of the Water Department's activities during the past year. If you have any questions about your water quality, the information contained in this report, or your water service in general, please call the Castine Water Department at (207) 326-8540. You may also direct questions or concerns to the DWP at (207) 287-2070 or the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791. Additional information is available on the Town's Water Department webpage:
www.castine.me.us/water

The Water Department works out of the Battle Avenue treatment system with hours from 7:00 am to 3:30 pm Monday through Friday except on holidays. The Utility Board meets in Emerson Hall on a quarterly basis and as needed.