

2018 Water Quality Report of the Belfast Water District

INTRODUCTION

This is the twenty-first annual water quality report of the Belfast Water District serving Belfast. This annual report is intended to provide you with important information about your drinking water. We know that you count on us for a safe and reliable supply of water every day, and our dedication to providing the highest quality of service to you at a great value. You may be interested to know that at the minimum rate, you pay less than one cent per gallon of water. Delivered to your home, you get 2 gallons of water for 1.5 cents, ten gallons for 7.5 cents and 100 gallons for 75 cents. You may be interested to know that this water supply has been tested for hardness 68 mg/l = 3.97 grains per gallon which is considered 'slightly moderate'.

THE CONTENTS OF THIS REPORT

The Safe Drinking Water Act mandates the State of Maine, along with the Environmental Protection Agency (EPA), to establish and enforce minimum drinking water standards. These standards set limits on certain biological, radioactive, organic and inorganic substances sometimes found in drinking water. The limits set on these standards are known as MCLs, Maximum Contaminant Levels. Two types of standards have been established. Primary Standards set achievable 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. Listed in this report are the results of the System's regular testing which provides the test results for both Primary Standards and Secondary Standards.

The 2018 testing results indicate *Belfast Water District's system* meets all state and federal requirements. No violations occurred in 2018. Water is tested for the contaminants listed on the table. The data presented in this report are from the most recent testing done in accordance with the regulations as set forth by the Safe Drinking Water Act.

WATER QUALITY

We ensure that your water is safe through regular monitoring and testing of water quality. Maine State Health and Environmental Testing Laboratory and Maine Water Testing Laboratory conduct these tests. State certified testing laboratories. This report shows a comprehensive summary of the laboratory test results for the constituents we regularly monitor in your water supply. Responsibility for maintaining water quality resides with our staff of certified water treatment plant operators, licensed by the State of Maine Department of Human Services.

HEALTH INFORMATION

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. Contaminants that may be present in source water include Microbial, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. Inorganic, 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.

For more information, please visit us on the web at www.belfastwater.org. OR at our office located at 285 Northport Avenue, Belfast, ME

SOURCE WATER ASSESSMENT AND PROTECTION

The sources of drinking water 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 Maine Drinking Water Program (MDWP) 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 our 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. Our wells are rated as a moderate risk because they are gravel packed wells installed in a surficial aquifer. The current land use around our wells results in low risk for bacteria and nitrates, and a low to moderate risk for long-term, chronic contaminants. Both wells are isolated from most sources of potential contamination. Our extensive property ownership and wellhead protection program, including a local ordinance, indicate a low future risk for bacterial contamination and low to moderate risk for chronic contaminants. These are important features in providing long-term protection. We will continue to work with the City to maintain and support these programs. Assessment results are available at town offices and public water systems. For more information, contact the MDWP at 287-2070.

WATER SYSTEM DATA

Your water supply and distribution system include over 39 miles of water mains. The system has 2,038 services serving 5,095 customers in 2018 and provides fire protection service through 250 hydrants. In the last twelve months, we have produced and delivered over 211,700,900 gallons of water. That's an average of 580,002 gallons each day. The system also maintains 3,050,000 gallons of water in our four storage tanks which allows us to meet peak system demand periods and maintain an adequate supply during fire-fighting activities.

OTHER IMPORTANT INFORMATION

This report is only a summary of our 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 us at our office (207) 338-1200, Monday thru Friday between 7:00 AM and 3:30 PM, or contact us by e-mail at info@belfastwater.org. Board of Trustees meetings are held monthly and open to the public. Meetings are posted on our website at: <http://www.belfastwater.org/meetingdate.htm>

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Thank you for allowing us to continue to provide you with clean, quality water this year!

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses. **Organic chemical**, including synthetic and volatile organic chemicals which are by-products of industrial processes and petroleum production and can also come from gas stations, urban runoff, and septic systems. **Radioactive**, which can be naturally-occurring or be the result of oil and gas production and mining activities. However, 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 at the following link: <https://www.epa.gov/CCR/forms/contact-us-about-consumer-confidence-reports>. MCL's (maximum contaminant levels) are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters (or about 2 quarts) of water every day at the MCL level for a lifetime to have a one in ten thousand chance of having the described health effect.

LEAD AND COPPER

The Federal Lead and Copper Rule mandate household testing for Lead and Copper. According to the rule, 90% of the samples from homes must have Lead levels less than 15 ppb and Copper levels less than 1.3 ppm. 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 Belfast Water District 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 are available from the Safe Drinking Water Hotline 1-800-426-4791 or at the following link: <http://www.epa.gov/safewater/lead>.

RADON

The highest Radon levels for our system were 969 pCi/L, taken in June 2005. Radon is found in the soil and bedrock formations and is a water-soluble, gaseous by-product of Uranium. Most Radon is released to the air, moments after turning on the tap. Only about 1-2 percent of Radon in the air comes from drinking water. The U.S. EPA is considering setting lower standards for Radon in drinking water. The State of Maine adopted a Maximum Exposure Guideline (MEG) for Radon in drinking water at 4,000 pCi/L, effective 1/1/07. If Radon exceeds the MEG in water, treatment is recommended. The U.S. EPA is proposing setting federal standards for Radon in public drinking water. It is also advisable to test indoor air for Radon. Breathing Radon released to air from tap water increases the risk of lung cancer over the course of your

lifetime. If you seek more information about Radon, please contact this office or the State Drinking Water Program and request a Radon 'Fact Sheet'.

TESTING WAIVER GRANTED

In 2017, our system was granted a 'Synthetic Organics Waiver'. This is a three-year exemption from the monitoring/reporting requirements for the following industrial chemical(s): TOXAPHENE/CHLORDANE/PCB, HERBICIDES, SEMIVOLATILE ORGANICS. This waiver is granted due to the absence of these potential sources of contamination within a half-mile radius of the water source(s).

WATER SUPPLY/SOURCE INFORMATION

The Belfast Water District uses groundwater as its water source. There are two gravel packed wells located in the Goose River Aquifer in Swanville and Belfast. These wells have been in production since the 1950s and provide a reliable source of supply. The wells are protected by the Aquifer/Watershed Overlay District Ordinance adopted by the City of Belfast in 1990.

WATER TREATMENT AND ASSESSMENT

To ensure the quality of your water, three treatment techniques are used by this water utility. They include Sodium Hydroxide for Corrosion control, Fluoride for the reduction of tooth decay, and Sodium Hypochlorite for disinfection.

Sodium Hydroxide, for the control of Lead and Copper. Maintaining the proper pH with the addition of sodium hydroxide, 25% solution in the water protects our distribution system and your home's plumbing system from the effects of lead and copper. The Federal EPA Standard for Lead is 15 ppb or less, and Copper is 1.3 ppm or less. This treatment has been so effective that our annual monitoring program for lead and copper levels has been reduced to once every three years under EPA guidelines. Belfast Water's last tests were done in August 2017 when 20 sites were tested in the distribution system, and the results were: Lead – 3.58ppb, and Copper – 0.163 ppm. (0 sites failed out of the 20 tested) Our next testing will be in the summer of 2020.

Sodium Fluoride, Fluoridation was authorized by referendum ballot on March 14, 1960, by the citizens of Belfast for the reduction of tooth decay. The Belfast Water District adds Sodium Fluoride to the water at the EPA recommended rate of 0.70mg/l.

Sodium Hypochlorite is added to ensure adequate disinfection of the water has occurred before delivery to you. Belfast Water has a disinfection level between 0.20mg/l and 0.40mg/l in the entire system per EPA guideline. Monthly bacteria samples are taken at six sites in the water system, and test results are reported to the Maine Drinking Water Program. Of the 72 samples taken in 2018, 0 failed.

MONITORING AND TESTING

Belfast Water District has four Maine State licensed operators that monitor and test your water. The treatment levels are contentiously monitored by analyzers at both wells, and all information is recorded by SCADA. The operators are immediately notified by the SCADA of any variances, and they immediately respond to correct them. These operators also perform backup tests of the water on a daily and weekly basis.

Primary Drinking Water Standards

PARAMETER	RESULTS	RANGE LOW-HIGH	MCL	MCLG	TYPICAL SOURCE
Clarity					
Turbidity (NTU) (12) (TT)	<0.6	0.05-0.10	5.0	5.0	Soil runoff
Microbiological					
Total Coliform Bacteria (18)(cfu) (<72 samples)	0 Positive	0 (72 tests)	1 pos/mo or 5%	0 pos	Naturally present in the environment
Organic Chemicals					
2,4-D (ppb)	NOT DETECTED	70	70		
Adipate (diethylhexyl) (ppb)	NOT DETECTED	400	400		
Aalachlor (ppb)	NOT DETECTED	2	0		
Aldicarb (ppb)	NOT DETECTED	3	1		
Aldicarb Sulfone (ppb)	NOT DETECTED	3	1		
Aldicarb Sulfoxide (ppb)	NOT DETECTED	3	1		
Atrazine (ppb)	NOT DETECTED	3	3		
Benzene (ppb)	NOT DETECTED	5	0		
Benzo (a) Pyrene (2) (ppt)	NOT DETECTED	200	0		
Carbofuran (ppb)	NOT DETECTED	40	40		
Carbon Tetrachloride (ppb)	NOT DETECTED	5	0		
Chlordane (ppb)	NOT DETECTED	2	0		
Chlorobenzene (ppb)	NOT DETECTED	100	100		
Dalapon (ppb)	NOT DETECTED	200	200		
Di(2-ethylhexyl) adipate (ppb)	NOT DETECTED	400	0		
Di(2-ethylhexyl) phthalate (PAE) (ppb)	NOT DETECTED	6	0		
Dibromochloropropane (DBCP) (2) (ppt)	NOT DETECTED	200	0		
Dichlorobenzene (p-) (ppb)	NOT DETECTED	75	75		
Dichlorobenzene o- (Ortho-) (ppb)	NOT DETECTED	600	600		
Dichloroethane (1,2-) (ppb)	NOT DETECTED	5	0		
Dichloroethylene (1,1-) (ppb)	NOT DETECTED	7	7		
Dichloroethylene (Trans-1,2-) (ppb)	NOT DETECTED	100	100		
Dichloromethane	NOT DETECTED	5	0		
Dichloropropene (1,2-) (ppb)	NOT DETECTED	5	0		
Dinoseb (ppb)	NOT DETECTED	7	7		
Dioxin (3) (ppq)	STATE WIDE WAIVER	30	0		
Diquat (4) (ppb)	STATE WIDE WAIVER	20	20		
Endothall (4) (ppb)	NOT DETECTED	100	100		
Endrin (ppb)	NOT DETECTED	2	2		
Ethylbenzene (ppb)	NOT DETECTED	700	700		
Ethylene Dibromide (EDB) (5) (ppt)	NOT DETECTED	50	0		
Glyphosate (3) (ppb)	STATE WIDE WAIVER	700	700		
Heptachlor (ppt)	NOT DETECTED	400	0		
Heptachlor Epoxide (ppt)	NOT DETECTED	200	0		
Heptachlor/Heptachlor Epoxide (ppt)	NOT DETECTED	200	0		
Hexachlorobenzene (ppb)	NOT DETECTED	1	0		
Hexachlorocyclopentadiene (ppb)	NOT DETECTED	50	50		
Lindane (ppt)	NOT DETECTED	200	200		
Methoxychlor (ppb)	NOT DETECTED	40	40		
Methyl-Tertiary-Butyl-Ether (MTBE) (13) (ppb)	NOT DETECTED	35	35		
Oxamyl (Vydate) (ppb)	NOT DETECTED	200	200		
Pentachlorophenol (ppb)	NOT DETECTED	1	0		
Picloram (ppt)	NOT DETECTED	500	500		
Polychlorinated Biphenyls (PCBs) (ppt)	NOT DETECTED	500	0		
Silvex (2,4,5-TP) (ppb)	NOT DETECTED	50	50		
Simazine (ppb)	NOT DETECTED	4	4		
Styrene (ppb)	NOT DETECTED	100	100		

Definitions:

Running Annual Average (RAA): A 12 month rolling average of all monthly or quarterly samples at all locations. Calculation of the RAA may contain data from the previous year.

Maximum Contaminant Level Goal (MCLG) established by EPA: The level of a contaminant in drinking water below which there is no known or expected risk to health.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in the drinking water. This is used to determine compliance.

Variance of Waiver: State or U.S. EPA permission not to meet MCL or treatment technique under certain conditions (e.g. waiver to filtration).

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

Action Level (AL): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow (e.g. lead, copper).

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 Disinfection 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.

Concentrations: In this report, most of the quantities are expressed as ppm, ppd, ppt and pCi/L. These are a measure of organics, inorganics or radiation activity per a fixed amount of water.

Million Fibers Per Liter: (MFL)

Locational Running Annual Average (LRAA): A 12 month rolling average of all monthly or quarterly samples at specific sampling locations. Calculation of the RAA may contain data from the previous year.

Parts per Million (ppm) or milligrams per liter (mg/L): the equivalent of one drop of chemical per every 10 gallons.

Parts per Billion (ppb) or micrograms per liter (ug/L): is the equivalent of one drop of chemical per every 10,000 gallons.

Parts per Trillion (ppt): Is the equivalent of one drop of chemical per every 10,000,000 gallons.

Parts per Quadrillion (ppq): Is equivalent of one drop of chemical per every 10,000,000,000,000 gallons.

Picocuries per Liter (pCi/L): Is a measure of the amount of naturally occurring radiation per liter of water.

Nephelometric Turbidity Units (NTU): Turbidity Units are the measurement of cloudiness in the water.

Colony Forming Units: (cfu)

Positive Samples (pos)

Primary Drinking Water Standards

PARAMETER	Test	Date	RESULTS	RANGE LOW-HIGH	MCL	MCLG	TYPICAL SOURCE
Organic Chemicals (continued)							
Tetrachloroethylene (TCE) (ppb)	NOT DETECTED	4/8/2014			5	0	
Toluene (ppm)	NOT DETECTED	3/27/2017			1	1	
Toxaphene (ppb)	NOT DETECTED	4/8/2014			3	0	
Trichlorobenzene (1,2,4-) (ppb)	NOT DETECTED	3/27/2017			70	70	
Trichloroethane (1,1,1-) (TCA) (ppb)	NOT DETECTED	3/27/2017			200	200	
Trichloroethane (1,1,2-) (ppb)	NOT DETECTED	3/27/2017			5	3	
Trichloroethylene (TCE) (ppb)	NOT DETECTED	4/8/2014			5	0	
Vinyl Chloride (ppb)	NOT DETECTED	3/27/2017			2	0	
Xylenes (ppm)	NOT DETECTED	3/27/2017			10	10	
Inorganic Chemicals							
Antimony, TOTAL (ppb)	0.51	3/27/2017			6	6	Discharge from petroleum refineries, fire retardants, ceramics, electronics, and solder.
Arsenic (15) (ppb)	NOT DETECTED	3/27/2017			10	0	Erosion of natural deposits
Asbestos (1) (MFL)	NOT DETECTED	11/12/2013			7	7	
Barium (ppm)	0.0054	3/27/2017			2	2	Discharge of drilling wastes, metals, refineries. Erosion of natural deposits.
Beryllium (ppb)	NOT DETECTED	3/27/2017			4	4	
Cadmium (ppb)	NOT DETECTED	3/27/2017			5	5	
Chromium (Total) (ppb)	1.2	3/27/2017			100	100	Discharge from steel and pulp mills. Erosion of natural deposits.
Copper (7) (ppm) 0 sites failed out of 20 sampled	0.163	8/25/2017			AL = 1.3	AL = 1.3	Corrosion of household plumbing systems
Cyanide(ppb)	NOT DETECTED	7/11/2017			200	200	
Fluoride (6) (ppm)	0.81	4/11/18		0.50 – 1.2	4	4	Erosion of natural deposits. Water additive which promotes strong teeth.
Lead (7) (ppb) 0 sites failed out of 20 sampled	3.58	8/25/2017			AL = 15	0	Corrosion of household plumbing systems
Mercury (ppb)	NOT DETECTED	3/27/2017			2	2	
Nitrate (17) (ppm)	0.51	4/4/2018			10	10	Runoff from fertilizer use. Leaching from septic tanks, sewage. Erosion of natural deposits.
Nitrite (ppm)	NOT DETECTED	3/27/2017			1	1	
Selenium (ppb)	NOT DETECTED	3/27/2017			0.05	0.05	
Thallium (ppb)	NOT DETECTED	3/27/2017			0.002	0.002	
Disinfection By-Products							
Total Trihalomethanes (TTHM) (8) (ppb)	8	8/2/2018			80	0	By-product of drinking water chlorination
Total Haloacetic Acids (HAA5) (8) (ppb)	1	8/2/2018			60	0	By-product of drinking water chlorination
Radionuclides							
Radon Screen (10) (pCi/L)	969	6/17/2005			4,000	N/A	Erosion of natural deposits
Gross Alpha Screen (9) (pCi/l)	NOT DETECTED	3/7/2012			15	0	Erosion of natural deposits
Radium 226/228 (Combined) (pCi/L)	0.818	5/2/2011			5	0	Erosion of natural deposits
Uranium-238 (16) (ppb)	1.4	4/8/2014			30	0	Erosion of natural deposits
Combined Uranium (ppb)	0.91	3/27/2017			30	0	Erosion of natural deposits
Other							
Cryptosporidium/Giardia (11)					0	0	
Calcium (mg/l)	21	3/27/2017					
Chlorine Residual (ppm)	0.31	2018		0.20 – 0.40	MRDL= 4 ppm	MRDLG=4 ppm	By-product of drinking water chlorination
Secondary Drinking Water Standards							
Chloride	9	3/27/2017		8-12	250	250	
Magnesium	3	3/27/2017			0.5	0.5	
Foaming Agents (MBAS)</							