



**Belfast Water District**  
**285 Northport Avenue, P.O. Box 506**  
**Belfast, Maine 04915**  
**www.belfastwater.org**  
**2016 Water Quality Report**

### **INTRODUCTION**

This is the nineteenth 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 we are dedicated 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 only .0075 cents per gallon of water. Delivered to your home, you get 2 gallons of water for 1 cent, ten gallons for .075 cents and 100 gallons for .75 cents. You may be interested to know that this water supply has been tested for hardness 70 mg/l = 4.1 grains 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 and Secondary Standards.

The 2016 testing results indicate *Belfast Water District's* system meets all state and federal requirements. No violations occurred. 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.

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. 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). 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 mandates 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 is available from the Safe Drinking Water Hotline 1-800-426-4791 or <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 USEPA 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 2014, our system was granted a "Synthetic Organics Waiver". This is a three year exemption from the monitoring/reporting requirements for toxaphene/chlordane/PCB, herbicides, carbamate pesticides, 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.

### **WATER SUPPLY/SOURCE INFORMATION**

The Belfast Water District uses ground water 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 1950's 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 affects of lead and copper. The Federal EPA Standard for Lead is 15 ppb or less, and Copper is 1.3ppm 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's guidelines. Belfast Water's last tests were done in 2014 when 20 sites were tested in the distribution system, and the results were, Lead – 4.48ppb, and Copper – 0.21ppm. (0 sites failed out of the 20 tested) Our next tests will be in the summer of 2017.

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 prior to 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 68 samples taken in 2016, 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.

### **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 has completed assessments of all public water sources in Maine. Our wells are rated as moderate risk because they are gravel packed wells installed in a surficial aquifer. The current land use around our wells results in a 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. Land ownership and wellhead management planning indicate a low future risk for bacterial contamination and low to moderate risk for chronic contaminants. Our extensive property ownership and wellhead protection program, including a local ordinance, are important features in providing long-term protection. We will continue to work with the City to maintain and support these programs. For more information, contact the Maine Drinking Water Program at 287-2070.

### **WATER SYSTEM DATA**

Your water supply and distribution system includes over 39 miles of water mains. The system has 2,003 services serving 5,008 customers in 2016 and provides fire protection service through 252 hydrants. In the last twelve months, we have produced and delivered over 198,951,100 gallons of water. That's an average of 543,582 gallons each day. The system also maintains 3,050,000 gallons of water in our 4 storage tanks. This storage allows us to meet peak system demand periods and maintain an adequate supply during fire fighting activities.

### **OTHER IMPORTANT INFORMATION**

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply, we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments. Thank you for your understanding.

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 **business office at (207) 338-1200 (7:00 AM to 3:30 PM) Monday thru Friday, or contact us by e-mail at [info@belfastwater.org](mailto:info@belfastwater.org)**. Board of Trustees Meetings, open to the public, are held monthly. The notice of meetings is posted on our website at [www.belfastwater.org](http://www.belfastwater.org). You may also direct questions to the Maine Department of Human Services Drinking Water Program at (207) 287-2070 or the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

### **BOARD OF TRUSTEES**

Stephen Hall – **Chairman**, Bruce Osgood, Henry Chalmers, Eileen Dubinett, Kenneth Colby Horne

### **EMPLOYEES**

Keith Pooler – **Superintendent**, Tammy Morse-Admin. Asst. Suzette Harford-Office Assistant

### **Plant Operations and Distribution**

Frank Short, **Foreman**

Harold Dyer, Donald Hahn, Jr., Kyle Payson

Primary Drinking Water Standards						Primary Drinking Water Standards (CONTINUED)						
Parameter	RESULTS	RANGE LOW-HIGH	MCL	MCLG	TYPICAL SOURCE	Parameter	Test Date	RESULTS	RANGE LOW-HIGH	MCL	MCLG	TYPICAL SOURCE
<b>Clarity</b>						<b>Organic Chemicals (continued)</b>						
Turbidity (NTU) (12) (TT)	<0.6	0.05-0.10	5.0	5.0	Soil runoff	Tetrachloroethylene (TCE) (ppb)	4/8/2014	NOT DETECTED		5	0	
<b>Microbiological</b>						Toluene (ppm)	4/8/2014	NOT DETECTED		1	1	
Total Coliform bacteria (cfu) (<68 samples)	0 Positive	0 (68 tests)	1 pos/mo or 5%	0 Positive	Naturally present in the environment	Toxaphene (ppb)	4/8/2014	NOT DETECTED		3	0	
						Trichlorobenzene (1,2,4-) (ppb)	4/8/2014	NOT DETECTED		70	70	
						Trichloroethane (1,1,1-) (TCA) (ppb)	4/8/2014	NOT DETECTED		200	200	
						Trichloroethane (1,1,2-) (ppb)	4/8/2014	NOT DETECTED		5	3	
						Trichloroethylene (TCE) (ppb)	4/8/2014	NOT DETECTED		5	0	
<b>Organic Chemicals</b>						Vinyl Chloride (ppb)	4/8/2014	NOT DETECTED		2	0	
2,4-D (ppb)	NOT DETECTED		70	70		Xylenes (ppm)	4/8/2014	NOT DETECTED		10	10	
Adipate (diethylhexyl) (ppb)	NOT DETECTED		400	400		<b>Inorganic Chemicals</b>						
Adipate (diethylhexyl) (ppb)	NOT DETECTED		2	0		Arsenic (ppb)	4/8/2014	NOT DETECTED		6	0	
Aldicarb (ppb)	NOT DETECTED		3	1		Arsenic (15) (ppb)	4/8/2014	0.73		10	0	Erosion of natural deposits
Aldicarb Sulfone (ppb)	NOT DETECTED		3	1		Asbestos (1) (MFL)	11/12/2013	NOT DETECTED		7	7	
Aldicarb Sulfonamide (ppb)	NOT DETECTED		3	1		Barium (ppm)	4/8/2014	0.0068		2	2	Erosion of natural deposits
Atrazine (ppb)	NOT DETECTED		3	3		Beryllium (ppb)	4/8/2014	NOT DETECTED		4	4	
Benzene (ppb)	NOT DETECTED		5	0		Cadmium (ppb)	4/8/2014	NOT DETECTED		5	5	
Benzo (a) Pyrene (2) (ppt)	NOT DETECTED		200	0		Chromium (Total) (ppb)	4/8/2014	1.3		100	100	Erosion of natural deposits
Carbifuran (ppb)	NOT DETECTED		40	40		Copper (7) (ppm) 0 sites failed out of 20 sampled	8/21/2014	0.21		AL = 1.3	AL = 1.3	Corrosion of household plumbing systems
Carbon Tetrachloride (ppb)	NOT DETECTED		5	0		Cyanide (ppb)	3/15/2011	NOT DETECTED		200	200	
Chlordane (ppb)	NOT DETECTED		2	0		Fluoride (6) (ppm)	12/21/2016	0.82		4	4	Erosion of natural deposits. Water additive which promotes strong teeth. Discharge from fertilizer and aluminium factories.
Chlorobenzene (ppb)	NOT DETECTED		100	100		Lead (7) (ppb) 0 sites failed out of 20 sampled	8/21/2014	4.48		AL = 15	0	Corrosion of household plumbing systems
Dalapon (ppb)	NOT DETECTED		200	200		Mercury (ppb)	4/8/2014	NOT DETECTED		2	2	
Di (2-ethylhexyl) adipate (ppb)	NOT DETECTED		400	0		Nitrate (ppm)	6/14/2016	0.59		10	10	Runoff from fertilizer use. Leaching from septic tanks, sewerage. Erosion of natural deposits
						Nitrite (ppm)	4/8/2014	NOT DETECTED		1	1	
Di (2-ethylhexyl) phthalate (PAE) (ppb)	NOT DETECTED		6	0		Selenium (ppb)	4/8/2014	NOT DETECTED		0.05	0.05	
Dibromochloropropane (DBCP) (2) (ppt)	NOT DETECTED		200	0		Thallium (ppb)	4/8/2014	NOT DETECTED		0.002	0.002	
Dichlorobenzene (p-) (ppb)	NOT DETECTED		75	75		<b>Disinfection By-Products</b>						
						Total Trihalomethanes (TTHM/HAA5) (8) (ppb)	8/29/2016	8		80	0	By-product of chlorination
						Total Haloacetic Acids	8/29/2016	NOT DETECTED		60	0	By-product of chlorination
Dichlorobenzene o- (Ortho-) (ppb)	NOT DETECTED		600	600		<b>Radionuclides</b>						
Dichloroethane (1,2-) (ppb)	NOT DETECTED		5	0		Gross Alpha Screen (9) (pCi/l)	3/7/2012	NOT DETECTED		15	0	Erosion of natural deposits
Dichloroethylene (1,1-) (ppb)	NOT DETECTED		7	7		Radium 226/228 (Combined) (pCi/L)	5/2/2011	0.818		5	0	Erosion of natural deposits
Dichloroethylene (Trans-1,2-) (ppb)	NOT DETECTED		100	100		Uranium (16) (ppb)	4/8/2014	1.4		30	0	Erosion of natural deposits
Dichloromethane	NOT DETECTED		5	0		Radon Screen (10) (pCi/L)	6/17/2005	969		4,000	N/A	Erosion of natural deposits
Dichloropropane (1,2-) (ppb)	NOT DETECTED		5	0		<b>Other</b>						
Dinoseb (ppb)	NOT DETECTED		7	7		Cryptosporidium/Giardia (11)				0	0	
Dioxin (3) (ppq)	STATE WIDE WAIVER		30	0		Calcium (mg/l)	4/8/2014	22				
Diquat (4) (ppb)	STATE WIDE WAIVER		20	20		Chlorine Residual (ppm)	2016	0.31	0.20 - 0.40	MRDL= 4.0 ppm	MRDLG=4 ppm	By-product of chlorination
Endothal (4) (ppb)	NOT DETECTED		100	100		<b>Secondary Drinking Water Standards</b>						
Endrin (ppb)	NOT DETECTED		2	2		<b>Chemical Parameters (ppm)</b>						
Ethylbenzene (ppb)	NOT DETECTED		700	700		Chloride	4/8/2014	13	8-12	250	250	
Ethylene Dibromide (EDB) (5) (ppt)	NOT DETECTED		50	0		Magnesium	4/8/2014	3.7				
						Foaming Agents (MBAS)		N/A		0.5	0.5	
Glyphosate (3) (ppb)	STATE WIDE WAIVER		700	700		Iron	4/8/2014	0.095		0.3	0.3	
Heptachlor (ppt)	NOT DETECTED		400	0		Manganese	4/8/2014	0.017		0.05	0.05	
Heptachlor Epoxide (ppt)	NOT DETECTED		200	0		Silver	4/8/2014	NOT DETECTED		0.10	0.10	
Heptachlor/Heptachlor Epoxide (ppt)	NOT DETECTED		200	0		Sulfate	4/8/2014	8		250	250	
Hexachlorobenzene (ppb)	NOT DETECTED		1	0		Total Dissolved Solids		N/A		500	500	
Hexachlorocyclopentadiene (ppb)	NOT DETECTED		50	50		Zinc	4/8/2014	0	<0.002-0.028	2	2	
Lindane (ppt)	NOT DETECTED		200	200		Sodium	4/8/2014	14				
Methoxychlor (ppb)	NOT DETECTED		40	40		Nickel	4/8/2014	0				
Methyl-Tertiary-Butyl-Ether (MTBE) (13) (ppb)	NOT DETECTED		35	35		<b>Physical Parameters</b>						
Oxamyl (Vydate) (ppb)	NOT DETECTED		200	200		Color (units)	4/8/2014	less 5.0		15.0	15.0	
Pentachlorophenol (ppb)	NOT DETECTED		1	0		pH	4/8/2014	7.5		6.5-8.5	6.5-8.5	
Picloram (ppb)	NOT DETECTED		500	500		<b>Footnotes:</b>						
Polychlorinated Biphenyls (PCBs) (ppt)	NOT DETECTED		500	0		(1) Asbestos - State wide waiver to testing in Maine. Only those systems with asbestos pipe need test.						
Silvex (2,4,5-TP) (ppb)	NOT DETECTED		50	50		(2) Dibromochloropropane - State wide waiver granted to Maine						
Simazine (ppb)	NOT DETECTED		4	4		(3) Dioxin/Glyphosate - State wide waiver granted to Maine						
Styrene (ppb)	NOT DETECTED		100	100		(4) Diquat/Endothal - Testing only required if potato growing occurs in watershed.						
						(5) Ethylene Dibromide - Testing only required for ground water systems. State wide waiver for surface water systems in Maine.						
<b>Definitions:</b>						(6) Fluoride - Levels must be maintained between 0.5 to 1.2 ppm. The optimum level is 0.7 ppm						
Running Annual Average (RAA):	The Average of all monthly or quarterly samples for the last year at all sample locations.											
Maximum Contaminant Level Goal (MCLG):	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 which, if exceeded, triggers treatment or other requirements which 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.											
Parts per Million (ppm):	Is the equivalent of one drop of chemical per every 10 gallons.											
Parts per Billion (ppb):	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)												
						(7) Copper/Lead action levels (AL) are measured at consumer's tap. 90% of tests in water system must be equal to or below action level						
						(8) Total Trihalomethanes (TTHM/HAA5): Total Trihalomethanes and Haloacetic Acids are formed as a by-product of drinking water chlorination. This chemical reaction occurs when chlorine combines with naturally occurring organic matter in water.						
						(9) Gross Alpha - Action level over 5pCi/l requires testing for Radium 226/228. Action level over 15pCi/l requires testing for Radon & Uranium						
						(10) Radon - 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. It is also advisable to test indoor air for Radon. The U.S. EPA is proposing setting federal standards for Radon in Public drinking water.						
						(11) Cryptosporidium, Giardia, Legionella - Surface Waters Only, Ground waters not required to test or exempt before 1999.						
						(12) Turbidity - Surface waters only; 1.49 NTU for Slow Sand or AFT Turbidity (continued) 0.549 NTU for Conventional or Direct Filtration; 5.0 ntu for unfiltered surface water systems.						
						(13) MTBE - State of Maine MCL standard, adopted in February 1998						
						(14) MFL is "Million Fibers per Liter"						
						(15) Arsenic - The U.S. EPA adopted the new MCL standard in October 2001. Water systems must meet this new standard by January 2006.						
						(16) Uranium - The U.S. EPA adopted the new MCL standard of 30 ppb, in December 2000. Water systems must meet this new standard by December 2003.						