Consumer Confidence Report
The Quality of Your Drinking Water

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Is Lead a Concern in Your Drinking Water?

It's only been four years since reports came out of Flint, Michigan that more than 6,000 children had been exposed to high levels of lead in their drinking water. Higher than normal amounts of lead are known to affect a child's growth, behavior and ability to learn, so Flint's problem quickly became a national story. For those who have forgotten the details, the City of Flint changed their water supply from Lake Huron and the Detroit River to the Flint River. Normally, switching a source wouldn't be a problem, but the water in the Flint River was more "aggressive" and caused lead in old pipes to leach into the system. This could have been prevented by simply adding corrosion inhibitors before the water left the treatment plant, but for some reason those managing Flint decided against them.

Four years later, federal, state, and local governments have spent more than $600 million to correct the problem, and that doesn't include the massive amounts spent on lawsuits and settlements. The decision to switch the water source to save money looks tragic from the distance of four years. Likewise, the failure to provide corrosion control looks equally foolish.

Flint isn't the only community to face the lead issue. In 2003, Washington, D.C. discovered that 23,000 homes had lead-based water pipes. Please understand that lead-based pipes don't equal lead contamination, but it does set the stage for something to go wrong. You can also add Sebring, Ohio, Durham and Greenville, North Carolina, and Jackson, Mississippi to the list of cities facing a lead problem over the last few years.

Byron Slagell and our staff work around the clock to ensure the quality of our water supply.

So, what's the situation in Bridgewater? Is your drinking water safe? You'll see the answer inside this report. As you probably expected, we are within all parameters or limits for contaminants in drinking water. That doesn't mean that everyone in town should make an assumption that every single home is safe, but it would be rare for any of our citizens to face a lead limit high enough for concern.

Here are a few things to consider. Was your home built before the 1970's? Lead pipe was legal prior to that time. It was sold as galvanized pipe, which is zinc coated lead. In Bridgewater, we've found that most of the older homes have copper pipe, as do many of the newer ones. We noticed when razing the old Sipe's Store that the water pipes were lead, but since the building was constructed in the 1800's, that's not a surprise.

If you have old plumbing and feel there might be a problem, you may want to have your water tested. This is especially true if you have someone pregnant or very young living in your home. If your home meets these criteria we'd be glad to help. Just give us a call at 908-4212 and we'll do a one-time test for lead, free of charge, to ensure that your plumbing is safe.

Bridgewater Water Treatment Plant: 7-Time Gold Medal Winner

For the seventh year in a row, Bridgewater has received the Virginia Department of Health's highest honor in water treatment. The lengthy title, "Virginia Department of Health's Office of Drinking Water Gold Treatment Award," is a reflection of the experience and dedication of our Plant Supervisor, Shane Pyles, and his staff of Wayne Roberts, Byron Slagell, Anna King, and Josh Kinkead.

In addition to the "Gold Medal," the Virginia Department of Health (VDH) noted that our staff had maintained optimal levels in some key components of finished water for ***thirteen*** straight years. To maintain this level of consistency, our staff constantly monitor filters, chemical feeds, and back-washing efficiency in order to meet VDH standards. We are pleased that our Water Treatment Plant has been so honored and congratulate the plant staff on this accomplishment.

Plant Supervisor Shane Pyles has worked at our Water Treatment Plant since 1993.

Quality of Your Drinking Water: Water Quality Test Results for 2017

Your drinking water is routinely monitored according to federal and state regulations for a variety of contaminants. The tables that follow show the results of our monitoring for the period of January 1 through December 31, 2017.

The results in most of these tables are from testing done in 2017. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. As a result some of our data, though accurate, is more than one year old and only those contaminants that had some level of detection are listed. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment and therefore, not listed. Maximum Contaminant Levels (MCLs) are set by the U.S. Environmental Protection Agency (EPA). In developing the standards, the EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. The EPA generally sets MCLs at levels that will result in no adverse health effects for some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

Lead and Copper (Most recent monitoring period)

Contaminant/Unit of Measurement	MCLG	MCL	Level Found/Range	Exceedance	Date of Sample (Next 7/2020)	Typical Source of Contamination
Copper ppm	1.3	AL = 1.3	0.034 (90th percentile) None of the 20 samples collected exceeded the AL.	No	September 2017	Corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives.
Lead ppb	0	AL = 15	2.40 (90th percentile) None of the 20 samples collected exceeded the AL.	No	September 2017	Corrosion of household plumbing systems; Erosion of natural deposits.

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. The Town of Bridgewater 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 the 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 at http://www.epa.gov/safewater/lead.*

Radiological Contaminants (Most recent monitoring period)

Contaminant/ Unit of Measurement	MCLG	MCL	Level Found/ Range	Violation	Date of Sample (Next 4/2020)	Typical Source of Contamination
Combined Radium - pCi/L	0	5	ND	No	April 2014	Erosion of natural deposits
Alpha emitters - pCi/L	0	15	0.12	No	April 2014	Erosion of natural deposits
Gross Beta - pCi/L	0	50	1.20	No	April 2014	Decay of natural & manmade deposits

Radiological Contaminants: *Certain minerals are radioactive and may emit various forms of radiation. They become a part of the water supply through erosion of the mineral deposits. Some people who drink water containing radiation in excess of the maximum contaminant limit may have an increased risk of getting cancer. Our water shows trace amounts of alpha and beta radiation. Please note that our readings are far less than the MCL.*

Inorganic Contaminants

Contaminant/Unit of Measurement	MCLG	MCL	Level Found/ Range	Violation	Date of Sample	Typical Source of Contamination
Fluoride ppm	4	4	Range: 0.56 to 0.77	No	Monthly 2017	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer & aluminium factories.
Barium ppm	2	2	0.0348	No	April 2017	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits.
Nitrate ppm	10	10	0.96	No	April 2017	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.

Inorganic Contaminants: *The Department of Health tests for 15 different inorganic contaminants including arsenic, asbestos, mercury, & nitrate. Lead is also classified as "inorganic" but it is listed separately in this report since it is of particular concern for all water systems. We show small amounts of fluoride and nitrate in our test results. Fluoride is added at the water filtration plant as a preventative for tooth decay. Nitrates occur in our system and were a concern in the past. However, we now blend river & well water, greatly reducing our nitrate levels. In this report we show slightly more than one part per million, a small fraction of the MCL.*

Microbiological Contaminants

Contaminant/Unit of Measurement	MCLG	MCL	Level Found/Range	Violation	Date of Sample	Typical Source of Contamination
Turbidity NTU	NA	TT=0.3 NTU (95% of monthly samples must be <0.3 NTU)	0.08 Max (Maximum & all monthly samples <0.3 NTUs 100% of the time)	No	Daily	Soil runoff

Turbidity: *All water contains a certain amount of suspended solids, some of which could be microbiological contaminants that can cause sickness if ingested. Drinking water turbidity is measured in nephelometric turbidity units (NTUs) and a reading of .3 or less is considered safe by the Health Department. For comparison, 5 NTU turbidity is barely noticeable to the naked eye. The Town's drinking water falls well below the standard for safe drinking water.*

Disinfection By-Products

Contaminant/ Unit of Measurement	MCLG	MCL	Level Found	Violation	Date of Sample	Typical Source of Contamination
TTHMs (Total Trihalomethanes) ppb	0	80	Average: 22 Range: 21.5 to 22.3	No	August 2017	By-product of drinking water chlorination.
Haloacetic acids (HAAs) ppb	NA	60	Average: 31 Range: 23.6 to 37.7	No	August 2017	By-product of drinking water chlorination.

Disinfection By-Products: *Disinfection by-products are formed by the reaction of the disinfectant with natural organic matter in the water. Bridgewater samples are significantly lower than the maximum allowable limit in both TTHMs and HAAs.*

Disinfection By-Products Precursors

Contaminant/ Unit of Measurement	MCLG	MCL	Level Found/ Range	Violation	Date of Sample	Typical Source of Contamination
(TOCs) Total Organic Carbon ppb	NA	TT	Range: 0.31 to 0.77	No	Monthly 2017	Naturally present in the environment.

Disinfection By-Products Precursors: *A precursor is a substance from which another substance is formed. For Carbon, it can combine with Chlorine to form organic compounds. In greater concentrations, some are harmful to human health. Our level of TOC is low and poses no health risk.*

Disinfectant Residual Contaminants

Contaminant/ Unit of Measurement	MCLG	MCL	Level Found/ Range	Violation	Date of Sample	Typical Source of Contamination
Chlorine mg/L	4	4	Range: 0.78 to 1.51	No	Monthly 2017	By-product of drinking water chlorination.

Four Groups of Contaminants

1. Microbial Pathogens. Pathogens in drinking water are serious health risks. Pathogens are disease-producing micro-organisms, which include bacteria (such as *giardia lamblia*), viruses, and parasites. They get into drinking water when the water source is contaminated by sewage and animal waste, or when wells are improperly sealed and constructed. They can cause gastroenteritis, salmonella infection, dysentery, shigellosis, hepatitis, and giardiasis (a gastrointestinal infection causing diarrhea, abdominal cramps, and gas). The presence of coliform bacteria, which is generally a harmless bacteria, may indicate other contamination to the drinking water system.

2. Organics. Some chemical compounds are known as "organics." These contain carbon and are often found in nature. Most organics would be considered harmless, but some are regulated, such as:

- Trihalomethanes (THMs), formed when chlorine in treated drinking water combines with naturally occurring organic matter;
- Pesticides, including herbicides, insecticides, amd fungicides; and
- Volatile organic chemicals (VOCs), which include solvents, degreasers, adhesives, gasoline additives, and fuel additives. Some of the common VOCs are benzene, trichloroethylene (TCE), styrene, toluene, and vinyl chloride. Possible chronic health effects include cancer, central nervous system disorders, liver and kidney damage, reproductive disorders, and birth defects.

3. Inorganics. These contaminants include toxic metals like arsenic, barium, chromium, lead, mercury, and silver. These metals can get into your drinking water from natural sources, industrial processes, and the materials used in your plumbing system. Toxic metals are regulated in public water supplies because they can cause acute poisoning, cancer, and other health effects.

Nitrate is another inorganic contaminant. The nitrates in mineral deposits, fertilizers, sewage, and animal wastes can contaminate water. Nitrate has been associated with "blue baby syndrome" in infants.

4. Radioactive Elements. Radon is a radioactive contaminant that results from the decay of uranium in soils & rocks. It is usually more of a health concern when it enters a home as a soil gas than when it occurs in water supplies. Radon in air is associated with lung cancer.

Definitions

Throughout this report there may be unfamiliar terms and abbreviations. The following definitions are provided to help you better understand these terms:

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

Maximum Contaminant Level (MCL): Highest level of a contaminant 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.

Nephelometric Turbidity Unit (NTU): A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Non-detects (ND): Lab analysis indicates that the contaminant is not present.

Parts per million (ppm) or milligrams per liter (mg/l): One part per million corresponds to one minute in 2 years, or a single penny in $10,000.

Parts per billion (ppb) or micrograms per liter: One part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Parts per trillion (ppt) or nanograms per liter (nanograms/l): One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.

Picocuries per liter (pCi/l): A measure of the radioactivity in water.

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

Variances and exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

Town of Bridgewater
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Local
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Annual Drinking Water Quality Report

Town of Bridgewater (PWSID No. 2165045)

Source Water Assessment

The Virginia Department of Health (VDH) completed a source water assessment on March 27, 2002. This assessment determined that our source may be susceptible to contamination because it is located in an area that promotes migration of contaminants from land use activities of concern. More specific information may be obtained by contacting **Bob Holton** at **(540) 908-4212.**

What does that mean? The language used to describe the "Source Water Assessment" was written by the Virginia Department of Health. What this really means is that North River runs through an agricultural area that is subject to contamination from fields. In addition, Pilgrim's Pride and a few small industries are upstream from our intake. This also poses a risk. However, it should be noted that no contamination of North River has occurred over the past fifteen years. In fact, the last contamination we can remember came from a farm upstream and happened over thirty years ago.

An Open Letter to the Citizens of Bridgewater:

Each year about this time you receive a report on the quality of your drinking water. While this is mandated by the Environmental Protection Agency and the Virginia Department of Health, we welcome the opportunity to explain our water treatment system to you and share the results of recent testing for contaminants.

First and foremost, please realize that your drinking water meets all state and federal requirements administered by the Office of Drinking Water for the Virginia Department of Health. We are committed to providing you with a safe and dependable supply both now and in the future.

I hope you enjoy reading this report and that it gives you a better understanding of the issues surrounding water and public health.

Sincerely,

A. Fontaine Canada

A. Fontaine Canada, Chairman
Public Works Committee

This "Quality of Your Drinking Water" Report was prepared by Town of Bridgewater staff. For information, please call (540) 908-4212.