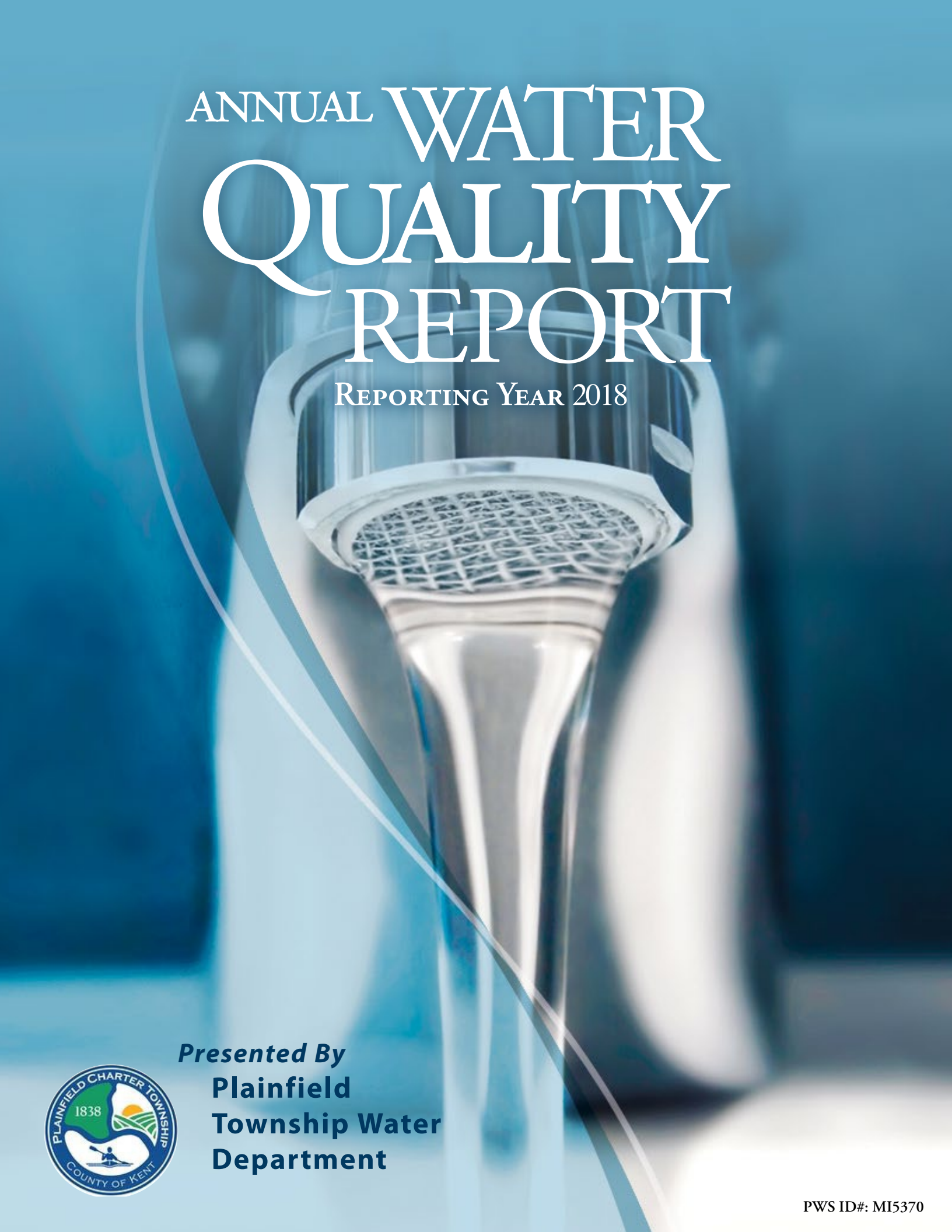
ANNUAL WATER QUALITY REPORT

Reporting Year 2018



Presented By

Plainfield Township Water Department

PWS ID#: MI5370

Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2018. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

PFAS in the News

The water department has effectively removed trace levels of PFOS and PFOA with the change from regular filter media to granular activated carbon (GAC). We now have 8 filters that have been converted to GAC filtration. The daily filtering capacity of these filters is 12 million gallons per day (MGD). There are 4 additional filters with a capacity of 4 MGD that do not filter PFAS. We do not plan to use any of these filters unless there is an emergency, or an unusual summer water demand due to drought. Even then, we will use as few of these filters as possible. If this should occur, levels of PFAS will still be well below EPA health advisory guidance. The majority of the cost for the GAC conversion was paid for with a $750,000 grant from the State of Michigan. The newest GAC filter conversion was paid with Water Department funds. It is the intention of the water department to convert the remaining filters to GAC in ensuing budget years.

Where Does My Water Come From?

Plainfield Township Water Department customers enjoy an abundant water supply from 11 wells located in two separate well fields. The Water Treatment Plant no longer draws water from the 5 wells located in the Versluis well field East of Northland Drive, due to the presence of elevated levels of PFAS first detected in 2013. PFAS is a family of unregulated contaminants for two of which the EPA has issued a health advisory (PFOS and PFOA) of 70 parts per trillion individually or combined. We have never exceeded this health advisory. The East and West well fields near the plant contain 11 wells that make up our raw water supply. The Township is in the process of finding a new well field to replace the 5 Versluis wells.

Plainfield Township Water Facts:

- 1.455 billion gallons of water served
- 40,000 population served
- 9.90 million gallons maximum day pumpage
- 1.87 million gallons minimum day pumpage
- 4.08 million gallons per day average usage
- 230 miles of water main
- 9,000 water meters
- 2,000 valves
- 2,000 hydrants
- 14 elevated and ground storage tanks with a total capacity of 14.1 million gallons of water

The water storage tanks provide pressure as well as water for fire protection. Five pump stations move water to our tanks and four pressure districts. We provide water to Plainfield Township, Alpine Township, Grand Rapids Township, Algoma Township, and a small section in the City of Walker.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or http://water.epa.gov/drink/hotline.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

> "We remain vigilant in delivering the best-quality drinking water"

Source Water Assessment

A Source Water Assessment Plan (SWAP) is available at our office. The State of Michigan performed this assessment of our source water in 2003. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources.

According to the Source Water Assessment Plan, our water system had a susceptibility rating of "high" due to the geological characteristics of the soils around our wells. The importance of protecting the Township's well fields cannot be overemphasized. If a release of pollutants occurs on the ground near our wells, it will travel very quickly toward these wells and the Grand River. We have enacted a Wellhead Protection Ordinance, and a map of the Wellhead Protection Zone can be viewed through links located on the Township's Web site (www.plainfieldmi.org). We have no contamination violations, and our wells meet all standards for construction. If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Donald Petrovich, Water Treatment Plant Superintendent, at (616) 364-7174.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. Also, the water we deliver must meet specific health standards. Here, we show those substances that were detected in our water. Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The State recommends monitoring for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

We are participating in the 4th stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if U.S. EPA needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine[1] (ppm)	2018	[4]	[4]	0.81	0.15–1.27	No	Water additive used to control microbes
Combined Radium (pCi/L)	2015	5	0	1.66	1.66–1.66	No	Erosion of natural deposits
Fluoride (ppm)	2018	4	4	0.8	0.41–0.8	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Gross Alpha (pCi/L)	2015	15	NA	1.4	1.4–1.4	No	Erosion of natural deposits
Haloacetic Acids (HAA5) (ppb)	2018	60	NA	16.6	11.2–22.0	No	By-products of drinking water disinfection
Nitrate (ppm)	2018	10	10	1.10	1.10–1.10	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Organic Carbon[2] (% removal)	2018	TT	NA	34% Removal	34%–69% Removed	No	Naturally present in the environment
TTHMs[3] (ppb) **Total Trihalomethanes**	2018	80	NA	65	44.0–80.4	No	By-product of drinking water disinfection
Turbidity[4] (NTU)	2018	TT	NA	0.06	0.04–0.06	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2018	TT = 95% of samples meet the limit	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	RANGE LOW-HIGH	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2016	1.3	1.3	0.02	0–0.097	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2016	15	0	0	0–12	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Sulfate (ppm)	2018	250	NA	46.8	46.8–46.8	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED AND OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
6:2 Fluorotelomer Sulfonic Acid (6:2 FTS) (ppt)	2018	4.3	<2.0–4.3	Industrial application and consumer products
Calcium (ppm)	2018	38	18–38	Naturally present in the ground water
Chloride (ppm)	2018	100.5	65–100.5	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Haloacetic Acids HAA9 (ppb)	2018	18	12.8–18	By-product of drinking water disinfection
Hardness (ppm)	2018	172	116–172	Naturally present in the ground water
Iron (ppm)	2018	0.0435	0.0435–0.0435	Leaching from natural deposits; Industrial wastes
Magnesium (ppm)	2018	24	11–24	Naturally present in the ground water
Perfluorobutanoic Acid (PFBA) (ppt)	2018	12.0	<2.0–12.0	Industrial application and consumer products
Perfluoropentanesulfonic Acid (PFPeA) (ppt)	2018	33.0	3.5–33.0	Industrial application and consumer products
Perfluorobutanesulfonic Acid (PFBS) (ppt)	2018	3.5	<2.0–3.5	Industrial application and consumer products
Perfluorododecanesulfonic Acid (PFDOS) (ppt)	2018	2.3	<2.0–2.3	Industrial application and consumer products
Perfluoroheptanoic Acid (PFHpA) (ppt)	2018	10.0	<2.0–10.0	Industrial application and consumer products
Perfluorooctanesulfonate Acid (PFOS) (ppt)	2018	5.1	<2.0–5.1	Industrial application and consumer products
Perfluorooctanoic Acid (PFOA) (ppt)	2018	2.7	<2.0–2.7	Industrial application and consumer products
Perfluorohexanesulfonic Acid (PFHxA) (ppt)	2018	11	<2.0–11	Industrial application and consumer products
Sodium (ppm)	2018	37.7	37.7–37.7	Naturally present in ground water

[1] These values are based on a running annual average.
[2] 15% TOC removal is required.
[3] Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
[4] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

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

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as the highest LRAAs.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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.

MRDLG (Maximum Residual Disinfectant Level Goal): 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.

NA: Not applicable

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

ppt (parts per trillion): One part substance per trillion parts water (or nanograms per liter).

SMCL (Secondary Maximum Contaminant Level): These standards are developed to protect aesthetic qualities of drinking water and are not health based.

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

Lead in Home Plumbing

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. We are responsible for providing high quality drinking water but we 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 at (800) 426-4791, or on the U.S. EPA's Web site at http://water.epa.gov/drink/info/lead/index.cfm.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our well water sources and sent to the treatment plant. The water then passes through a clarifier, where lime and alum are added. The addition of these substances causes small particles to adhere to one another (called floc), making them heavy enough to settle. These small particles are made up of calcium and magnesium, which is commonly called hardness. The heavy hardness particles drop to the bottom of the clarifier, and the sediment is removed by gravity to be drained. Chlorine and fluoride are added for disinfection and prevention of tooth decay. The clarified, softened water then flows by gravity to 8 filters constructed with granular activated carbon (GAC), and 4 filters with layers of fine silicate sand and anthracite coal. We intend to use the GAC filters exclusively, unless an emergency or unexpected water demand forces us to use some conventional filters. The filters with GAC, which have a capacity to filter 12 million gallons of water a day, are designed to remove trace levels of PFAS and other contaminants. Finally, a corrosion inhibitor in the form of phosphate (to protect distribution system pipes) is added before the water is pumped to ground storage reservoirs and elevated water tanks.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. Township board meetings are held the 2nd and 4th Monday of each month beginning at 7:00 p.m. at Plainfield Township Hall, 6161 Belmont Ave., Belmont, Michigan 49306.