Annual WATER QUALITY REPORT

Reporting Year 2013

Presented By
Plainfield Township
Water Department

PWS ID#: MI5370

There When You Need Us

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2013. 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.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. There are Township board meetings the first and third Mondays of each month beginning at 7:00 pm at Plainfield Township Hall, 6161 Belmont Ave., Belmont.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 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, 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, which 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.

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 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 www.epa.gov/safewater/lead.

Where Does My Water Come From?

Plainfield Township Water Department customers are fortunate because we enjoy an abundant water supply from 16 wells located in three separate well fields. The Water Treatment Plant draws water from five wells in the Versluis well field East of Northland drive, the East well field near the Treatment Plant, which has three submersibles and three collector wells, and the West well field, also near the plant, that has five wells. The Water Treatment Plant was originally constructed in 1963 and expanded over the years to draw from this underground water supply that is constantly being resupplied with water from rain and upgradient aquifer flow from the hilly area to the South. Our treatment facility provides over a billion gallons of clean drinking water every year. Our 16 million gallon a day capacity lime-softening water treatment plant meets every federal and state requirement for safe drinking water. For the year 2013, the Water Treatment Plant supplied 1.348 billion gallons of water to roughly 40,000 customers. Our maximum day pumpage was 8.58 million gallons. The minimum day pumpage was 1.91 million gallons. Our average day was calculated to be 3.69 million gallons.

In the water distribution system there are more than 200 miles of water main, more than 9,000 water meters, and more than 2,000 valves and hydrants, respectively. There are 14 elevated and ground water storage tanks in the system ranging from 200,000 to 4 million gallons of capacity. Our total water tank storage capacity is 14.1 million gallons of water. These 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.

Source Water Assessment

A Source Water Assessment Plan (SWAP) is now 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 the links located on the Township's website (www.plainfieldchartertwp.org). We have no contamination violations, our wells meet all standards for construction, and there have been no contamination incidents in our isolation areas. 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.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our well water source and sent to the treatment plant. The water then passes through a clarifier, where lime and alum are added. The addition of these substances cause 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 also added for disinfection and prevention of tooth decay. The clarified, softened water then flows by gravity to filters constructed with layers of fine silicate sand and anthracite coal. As water is pumped through these filters, smaller suspended particles are removed, and clear water emerges. All chemicals added to the water are carefully monitored, adding the lowest quantity necessary to protect the safety of your water without compromising taste. Finally, a corrosion inhibitor in the form of phosphate (used to protect distribution system pipes) is added before the water is pumped to ground storage reservoirs and elevated water tanks where gravity takes over to provide water under pressure to homes, schools, and businesses.

The most common signs that your faucet or sink is affecting the quality of your drinking water are discolored water, sink or faucet stains, a buildup of particles, unusual odors or tastes, and a reduced flow of water. The solutions to these problems may be in your hands.

Kitchen sink and drain

Hand washing, soap scum buildup, and the handling of raw meats and vegetables can contaminate your sink. Clogged drains can lead to unclean sinks and backed up water in which bacteria (i.e., pink and black colored slime growth) can grow and contaminate the sink area and faucet, causing a rotten egg odor. Disinfect and clean the sink and drain area regularly. Also, flush regularly with hot water.

Faucets, screens, and aerators

Chemicals and bacteria can splash and accumulate on the faucet screen and aerator, which are located on the tip of faucets and can collect particles like sediment and minerals resulting in a decreased flow from the faucet. Clean and disinfect the aerators or screens on a regular basis.

Check with your plumber if you find particles in the faucet's screen as they could be pieces of plastic from the hot water heater's dip tube. Faucet gaskets can break down and cause black, oily slime. If you find this slime, replace the faucet's gasket with a higher-quality product. White scaling or hard deposits on faucets and shower heads may be caused by hard water or water with high levels of calcium carbonate. Clean these fixtures with vinegar or use water softening to reduce the calcium carbonate levels for the hot water system.

Water filtration/treatment devices

A smell of rotten eggs can be a sign of bacteria on the filters or in the treatment system. The system can also become clogged over time so regular filter replacement is important. (Remember to replace your refrigerator filters!)

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less 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 participated in the 3rd stage of EPA's Unregulated Contaminant Monitoring Regulation (UCMR3) program by performing additional tests on our drinking water for 30 unregulated contaminants. UCMR3 benefits the environment and public health by providing EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if EPA needs to introduce new regulatory standards to improve drinking water quality. Any UCMR3 detections are shown in the data tables in this report. Contact us for more information on this program.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine (ppm)	2013	[4]	[4]	0.77	0.19–1.25	No	Water additive used to control microbes
Chromium (ppb)	2013	100	100	0.5	0.4–0.5	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride (ppm)	2013	4	4	1.3	0.4–1.3	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA]–Stage 2 (ppb)	2013	60	NA	14.4	5.9–21.1	No	By-product of drinking water disinfection
Nitrate (ppm)	2013	10	10	1.17	1.17–1.17	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes]–Stage 2 (ppb)	2013	80	NA	64.2	42.7–65.5	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2013	5% of monthly samples are positive	0	2	NA	No	Naturally present in the environment
Total Organic Carbon (ppm)	2013	TT	NA	2.06	1.61–2.06	No	Naturally present in the environment
Turbidity[1] (NTU)	2013	TT	NA	0.08	0.04–0.08	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2013	TT=95% of samples <0.3 NTU	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%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2013	1.3	1.3	0	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2013	15	0	4	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
1,1-Dichloroethane (ppb)	2013	0.05	0.03–0.05	Industrial chemical
Calcium (ppm)	2013	38.0	19.0–38.0	Naturally present in ground water
Chloride (ppm)	2013	97.5	52.5–97.5	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Hardness (ppm)	2013	188	128–188	Naturally present in ground water
Iron (ppm)	2013	0.039	0.039–0.039	Leaching from natural deposits; Industrial wastes
Magnesium (ppm)	2013	30	16–30	Naturally present in ground water
Sodium (ppm)	2013	37.8	37.8–37.8	Naturally present in ground water
Sulfate (ppm)	2013	47.6	47.6–47.6	Naturally present in ground water

UNREGULATED CONTAMINANT MONITORING REGULATION 3 (UCMR3)				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
1,4 Dioxane (ppb)	2013	0.86	0.14–0.86	Industrial chemical
Chromium Hexavalent (ppb)	2013	0.56	0.42–0.56	Naural deposits of ores
Molybdenum (ppb)	2013	1.1	<1.0–1.1	Naturally occurring mineral element
Perfluorooctane Sulfonate (ppb)	2013	0.06	0.05–0.06	Industrial chemical
Strontium (ppb)	2013	100	91–100	Naturally occurring mineral element
Vanadium (ppb)	2013	0.6	0.5–0.6	Naturally occurring mineral element

[1] 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

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

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.

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).

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