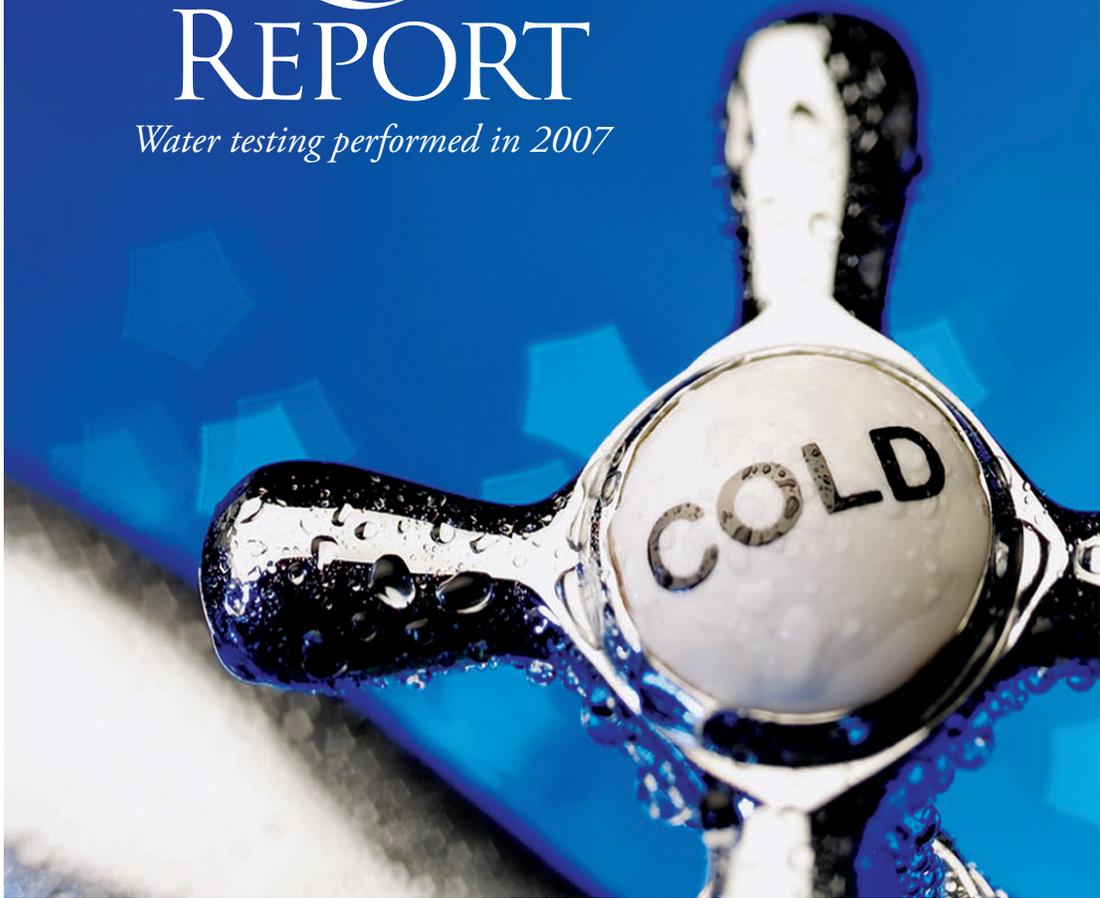


ANNUAL  
WATER  
QUALITY  
REPORT

*Water testing performed in 2007*



PLAINFIELD TOWNSHIP  
WATER DEPARTMENT

PWS ID#: 0005370

## Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1, 2007 through December 31, 2007. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

## Where Does My Water Come From?

The Plainfield Township Water Department gets its excellent-quality raw water from sixteen wells located in three different well fields. The raw water is treated in our water plant to meet every federal and state requirement for safe drinking water. In 2007, we provided more than 1.6 billion gallons of safe, clean drinking water to our customers.



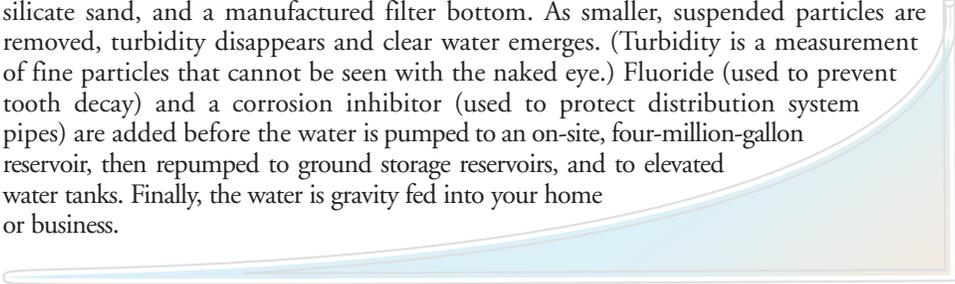
The water department has a full-treatment, lime-softening facility, hundreds of miles of water mains, thousands of valves and fire hydrants, five pump stations, 13 ground storage reservoirs and elevated water tanks. We currently provide water to Plainfield Township, Alpine Township, parts of the City of Walker, Grand Rapids Township, and Algoma Township. We can treat up to 16 million gallons of water a day. In 2007, we treated and pumped more than 1.6 billion gallons of water. Our minimum daily output was 2.4 million gallons of water. Our maximum daily output was 11.82 million gallons. The average daily output was 4.41 million gallons. In 2007, we improved the reliability of our water system by adding automatic stand-by generators to our tank sites and to a pump station.

## 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.

## How Is My Water Treated and Purified?

The treatment process consists of a series of steps. First, raw water is drawn from an underground aquifer from our wells and pumped to the water treatment plant. The water proceeds to a clarifier, where, with the addition of lime and aluminum sulfate, the water is softened to about half of its original hardness. Hardness in our water is made up of calcium and magnesium. Chlorine is also added at this step for disinfection. (We carefully monitor the amount of chlorine, adding the smallest quantity necessary to ensure the safety of your water without compromising taste.) After leaving our clarifiers, the water flows by gravity to our filters where it passes through layers of fine coal, silicate sand, and a manufactured filter bottom. As smaller, suspended particles are removed, turbidity disappears and clear water emerges. (Turbidity is a measurement of fine particles that cannot be seen with the naked eye.) Fluoride (used to prevent tooth decay) and a corrosion inhibitor (used to protect distribution system pipes) are added before the water is pumped to an on-site, four-million-gallon reservoir, then repumped to ground storage reservoirs, and to elevated water tanks. Finally, the water is gravity fed into your home or business.



## Source Water Assessment

The State of Michigan performed an assessment of our source water in 2003. Because of the geological characteristics of our wells, they are rated as having high susceptibility to contamination. We have no contamination violations, our wells meet all standards for construction, and there are no contamination sources within our isolation areas. We have a state-approved wellhead protection program. Remedies are in place to prevent known sources of contamination within the wellhead protection area from contaminating our wells. Most of our watershed is covered by forest, open space, residential development, retail businesses, and some industry. To learn more about protecting our water, you can get information on wellhead protection and water conservation from the Plainfield Township Water Department and from the Plainfield Charter Township Hall. You can read the Source Water Assessment report at the Plainfield Township Water Department office.

## Questions?

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

## Substances That Might Be in Drinking 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, 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 and Drinking Water

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 your home's plumbing. The Plainfield Township Water Department 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 two 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 at (800) 426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).



## Treatment Technique Violation

During the monitoring period from April 24, 2007 to April 26, 2007, we did not take the required number of routine samples for turbidity on one of our 16 filters. This violation did not pose a threat to the quality of the drinking water. When turbidimeters fail to operate, grab samples are required at least every four hours while the filter is in service. However, the Safe Drinking Water Act, Act 399, requires that the turbidimeter be repaired and put back into service within five days. Unfortunately, the turbidimeter that failed to operate was offline for almost eight days. This was due to the unavailability of parts that had to be back ordered.

On April 26, 2007, the turbidimeter was repaired and returned to service. The filter was monitored at least once every 1.5 hours for the entire duration, and at no time during the eight-day period did the turbidity readings fail to meet drinking water standards. In addition to continuously monitoring each individual filter, Plainfield Township's licensed water plant operators continuously monitored the combined filter effluent of all the filters, and at no time during the eight-day period did the turbidity at this location not meet drinking water standards.

A spare, portable turbidimeter has been purchased. This will alleviate this type of minor violation, which does not have adverse health effects. In addition, for the year 2008 and beyond, we have budgeted for and have started to replace, older turbidimeters that are being phased out by the manufacturer.

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

### Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced the public that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council (NRDC), bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25% of bottled water is actually just bottled tap water (40% according to government estimates).

The U.S. Food and Drug Administration (FDA) is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Further, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70% of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion of the NRDC study results, check out their Web site at [www.nrdc.org/water/drinking/bw/exesum.asp](http://www.nrdc.org/water/drinking/bw/exesum.asp).

# Sampling Results

During the past year we have taken hundreds of required water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present 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.

## REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2002	15	0	1.3	1.3–1.3	No	Erosion of natural deposits
Chlorine <sup>1</sup> (ppm)	2007	[4]	[4]	0.76	0.2–1.4	No	Water additive used to control microbes
Combined Radium (pCi/L)	2002	5	0	0.9	0.9–0.9	No	Erosion of natural deposits
Fluoride (ppm)	2007	4	4	1.3	0.79–1.3	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2007	60	NA	18.9	9.4–27.0	No	By-product of drinking water disinfection
Nitrate (ppm)	2007	10	10	1.35	1.35–1.35	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2007	80	NA	64.5	45.6–88.6	No	By-product of drinking water chlorination
Total Organic Carbon (ppm)	2007	TT	NA	2.13	1.56–2.13	No	Naturally present in the environment
Turbidity <sup>2</sup> (NTU)	2007	TT	NA	0.07	0.03–0.07	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2007	TT	NA	100	NA	No	Soil runoff

Tap water samples were collected from 31 sample sites throughout the community.

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	ACTION LEVEL	MCLG	AMOUNT DETECTED (90TH% TILE)	SITES ABOVE ACTION LEVEL	VIOLATION	TYPICAL SOURCE
Copper <sup>3</sup> (ppm)	2007	1.3	1.3	0.015	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2007	15	0	6	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

## UNREGULATED AND OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Calcium (ppm)	2007	42	22–42	Naturally present in groundwater
Chloride (ppm)	2007	93.5	65–93.5	Naturally present in groundwater
Hardness (ppm)	2007	230	126–230	Naturally present in groundwater
Iron (ppm)	2007	0.02	0.02–0.02	Naturally present in groundwater
Magnesium (ppm)	2007	27	14–27	Naturally present in groundwater
Sodium (ppm)	2007	32	32–32	Erosion of natural deposits
Sulfate (ppm)	2007	64.2	64.2–64.2	Naturally present in groundwater

<sup>1</sup> Reporting value based on the water system Running Annual Average (RAA).

<sup>2</sup> 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.

<sup>3</sup> Copper and lead will be resampled in 2010. This sampling is performed every three years in compliance with the U.S. EPA rules.

## 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.

**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).

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