



*Water testing performed in 2009*



*Presented By:*  
CITY OF ADRIAN  
UTILITIES DEPARTMENT

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PWS ID#: 00040

## Maintaining High Standards

The City of Adrian Utilities Department is once again proud to present our annual water quality report. This report details testing completed during the 2009 calendar year. This annual report is a result of a federal regulation passed as part of the 1996 Safe Drinking Water Act Amendments, requiring that all community water systems provide customers with an annual water quality report. This report will provide an overview of water quality sampling results and also provide an explanation of the sources of our water and the steps involved in our treatment process. The City of Adrian Utilities Department is committed to providing safe, dependable, quality drinking water. We are pleased to inform you that our drinking water met and surpassed every federal and state requirement in 2009.



We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions, we are always available to assist you.

## 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 [www.epa.gov/safewater/hotline/](http://www.epa.gov/safewater/hotline/).

## What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water are needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water are used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water are required to produce one quart of milk, and 4,200 gallons of water are required to produce two pounds of beef.

According to the U.S. EPA, the average American uses about 100 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet; twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish.

To check out your own water footprint, go to [www.h2oconserve.org](http://www.h2oconserve.org), or visit [www.waterfootprint.org](http://www.waterfootprint.org) to see how the water footprints of other nations compare.

FOR ANY AFTER HOUR WATER AND SEWER EMERGENCIES PLEASE CALL 517-264-4820.

## Questions?

For more information about this report, or for any questions relating to your drinking water, please call Tim Ritchie, City of Adrian Water Plant Superintendent, at (517) 264-4828.





## Source Water Assessment

The Michigan Department of Environmental Quality has performed an assessment of our source water to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a six-tiered scale from “very low” to “high,” based primarily on geologic sensitivity, water chemistry, and contamination sources. The susceptibility of our source has been rated as “high.”

Significant sources of contamination include listed potential contamination sources, plus urban and agricultural runoff from the Raisin River watershed above Adrian. We are making efforts to protect our source water by controlling access, performing routine sample analysis, and making frequent patrols on and around the watershed.

If you would like to know more about this report, please contact Tim Ritchie at (517) 264-4828. To report any suspicious activity around Lake Adrian or at any of our elevated tanks, please call the local police or the number above.

## Community Participation

The Adrian City Commission meets at 7 p.m. on the first and third Mondays of each month. The meetings are held at the City Commission Chambers at 159 E. Maumee Street. Please come and participate and voice any concerns you may have about your drinking water.

For further information, check out the City of Adrian's Web site at [www.ci.adrian.mi.us](http://www.ci.adrian.mi.us).

## 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, 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.



## Where Does My Water Come From?

The City of Adrian uses a blend of surface water from Lake Adrian and ground water from the recently completed Westside Well Field as its main sources of drinking water. Wolf Creek is the primary source of water that fills Lake Adrian. Wolf Creek is fed by a 65-square-mile watershed. Lake Adrian covers 86 acres and contains up to 300 million gallons of water. The City also has a ground water supply from the Westside Well Field and a well on Maple Avenue that is capable of producing approximately 3.2 million gallons of water per day. The well supply is blended with the lake to improve our source water quality. The City of Adrian Water Plant was constructed in 1944 and provides roughly 1.5 billion gallons of clean drinking water every year. The plant is staffed 24 hours a day, seven days a week, by a dedicated crew that is committed to their profession.

## How Is My Water Treated and Purified?

The treatment process consists of a series of steps. First, surface water is drawn from Lake Adrian where it is mixed with a ground water supply from the Westside Well Field and Maple Avenue Well. The water then goes to a mixing tank where powdered activated carbon is added to help absorb musty tastes and odors from the lake. Ferric sulfate (coagulant) and calcium oxide (softening) are added to the water next. The addition of these substances causes small particles to adhere to one another (called floc), making them heavy enough to settle into a basin from which sediment is removed. CO<sub>2</sub> is added to lower the pH (from softening) to levels which will not corrode the pipes in the distribution system. At this point, the water is filtered through layers of fine coal and silicate sand. As smaller, suspended particles are removed, turbidity disappears and clear water emerges. Chlorine is added after filtration to destroy any harmful bacteria that may still be present. We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste. Finally, fluoride (used to prevent tooth decay) and a corrosion inhibitor (used to protect distribution system pipes) are added before the water is pumped to sanitized underground reservoirs, to water towers, and finally into your home or business.

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## 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 home plumbing. The City of Adrian Utilities 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 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](http://www.epa.gov/safewater/lead).



## LT2 Rule

The U.S. EPA has created the Long Term 2 Enhanced Surface Water Treatment Rule (LT2) for the sole purpose of reducing illness linked with the contaminant *Cryptosporidium* and other disease-causing microorganisms in drinking water. The rule will bolster existing regulations and provide a higher level of protection of your drinking water supply.

Sampling of our water source has shown the following:

*Cryptosporidium*: 0 - 1 Oocysts/liter

*Giardia lamblia*: 0 - 2 Cysts/liter

*E. coli*: 1.0 - 27,230 *E. coli*/100ml

It is important to note that these results are from our raw water source only and not our treated drinking water supply. For more information, contact the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.



### Which household activity wastes the most water?

Most people would say the majority of water use comes from showering or washing dishes; however, toilet flushing is by far the largest single use of water in a home (accounting for 40% of total water use). Toilets use about 4-6 gallons per flush, so consider an ultra-low-flow (ULF) toilet, which requires only 1.5 gallons.

### Should I use hot water to make baby formula?

No. Hot water may contain impurities such as rust, copper, and lead that come from the hot water heater and plumbing in your house. These impurities can generally dissolve into hot water faster than into cold water.

## Sampling Results

During the past year we have taken hundreds of 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.

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
Chlorine (ppm)	2009	[4]	[4]	1.80	0.60–1.80	No	Water additive used to control microbes
Fluoride (ppm)	2009	4	4	1.30	0.38–1.30	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2009	60	NA	19.25	8.0–29.0	No	By-product of drinking water disinfection
Nitrate (ppm)	2009	10	10	1.84	ND–1.84	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2009	80	NA	66.25	18–150	No	By-product of drinking water chlorination
Total Organic Carbon (ppm)	2009	TT	NA	2.3	0.77–2.3	No	Naturally present in the environment
Turbidity <sup>1</sup> (NTU)	2009	TT	NA	0.17	0.06–0.17	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2009	TT	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)	2008	1.3	1.3	0.025	0/60	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2008	15	0	1.7	0/60	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			
Sodium (ppm)	2009	22	18–22	Erosion of natural deposits			
TTHMs [Total Trihalomethanes]–IDSE Results <sup>2</sup> (ppb)	2009	58.7	10–130	By-product of drinking water disinfection			

<sup>1</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>2</sup> We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.



## 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.

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**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.