THE CITY OF
WATERTOWN

2016 Consumer Confidence Report Data
WATERTOWN WATERWORKS, PWS ID: 12800447

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Water System Information

If you would like to know more about the information contained in this report, please contact Kevin L Freber at (920) 262-4075.

Should you have questions about the Water Department or this report; please contact Kevin L Freber at 920-262-4075 Monday - Friday 7:00 am - 3:00 pm

Opportunity for input on decisions affecting your water quality

The Public Works Committee normally meets at 6:30 pm on the 2nd and 4th Tuesday of the month at 106 Jones Street, Watertown, WI in room 2044

Daily Testing

Daily tests for chlorine, fluoride, and iron levels are taken. Chlorine is added to kill bacteria. The end-of-system chlorine levels should be at a minimum of .10 parts per million (PPM) and should not exceed 1.5 PPM. Levels higher than 1.5 PPM may create a displeasing taste and odor, but would be safe to drink, some people may taste or smell chlorine as low as a half part per million. Leaving water stand in an open vessel will allow the chlorine to dissipate.

Fluoride is added to the water for dental hygiene, to prevent tooth decay. The addition of fluoride to the water is a local decision, not a state or federal requirement. We maintain a level of 0.70 PPM. Watertown lowered our level on February 10th, 2013. Higher levels may create a displeasing metallic taste, but would be safe to drink. The Department of Health and Human Services requested the Environmental Protection Agency (EPA) to lower the maximum level of fluoride in drinking water to 0.7 PPM because of an increase in fluorosis, a condition that causes spotting and streaking on children's teeth. The EPA reviewed the Department of Health and Human Services

request and has allowed each state to change to the lower limit if they wish. The Wisconsin DNR indicated that cities adding fluoride may lower their levels to 0.7 mg/L, if they wish to do so. Fluoride was first added to water in the United States in the 1940s to help prevent tooth decay in children 8 years and under.

Watertown well water is normally high in iron. Iron removal filters are used to reduce iron levels to between .03 PPM and .05 PPM. On occasion, higher iron levels will occur, causing discolored water (red, red-brown, or yellow). The water is displeasing to look at but is safe to drink. Flushing the lines in your home by letting the water run from an outside or basement cold water, non-softened faucet, should clear the iron out of the lines. If the water continues to be discolored, please contact the Water Department office.

Health Information

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's safe drinking water hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune systems disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Environmental Protection Agency's safe drinking water hotline (800-426-4791).

Source(s) of Water

Source ID	Source	Depth (in feet)	Status
1	Groundwater	1145	Temp. out of Service
3	Groundwater	745	Temp. out of Service
4	Groundwater	725	Temp. out of Service
5	Groundwater	712	Temp. out of Service
6	Groundwater	703	Temp. out of Service
7	Groundwater	710	Active
8	Groundwater	725	Active
9	Groundwater	690	Active

Source ID	Source	Depth (in feet)	Status
10	Groundwater	840	Active

Wells #1,3,4,5,6 are temporarily out of service due to the upgrade to the central plant on first street.

To obtain a summary of the source water assessment please contact, Kevin L Freber at (920) 262-4075.

GEOLOGIC SETTING

The City of Watertown lies within the eastern ridges and lowlands province of Wisconsin along the meandering Rock River. Drumlin fields dominate the landscape along with hummocky morainal till and fluvial deposits. These features provide classic examples of recent glaciations.

The pre-Cambrian age crystalline rocks are the oldest, are essentially impermeable, and determine the lower limits of groundwater movement. Shallower Cambrian and Ordovician age rock consists of sandstones, shale, conglomerate, and dolomite. Sandstone formations such as the Eau Claire, Lone Rock, and St. Peter are the principle aquifers, and are collectively referred to as the sandstone aquifer. Quaternary age sediments consisting of unconsolidated sand, gravel, and clay overlie the Ordovician age rocks. These sediments are permeable and allow water to percolate through them and recharge the sandstone aquifer.

To the east, the sandstone aquifer is overlain by the Maquoketa Shale, which acts as a confining unit or a semi-impermeable barrier above the sandstone, which essentially prevents local precipitation from recharging the aquifer. Recharge to the sandstone aquifer, therefore, occurs across the entire region west of the Maquoketa Shale.

The groundwater divide is a line through Southeastern Wisconsin where water levels of the sandstone aquifer are at their highest altitude above mean sea level. The divide trends north/south and parallels the strike of the Maquoketa Shale. Groundwater moves laterally away from the perpendicular to the divide from points of higher to lower head. In Watertown, the normal movement of groundwater is believed to be in a westerly direction.

Watertown's existing pumping wells are all approximately 700 to 750 feet deep and are finished in the Cambrian Mt. Simon Formation. Well #1 was originally constructed much deeper in Pre-Cambrian age rocks but has since filled in to approximately 960 feet. The wells derive their water primarily from the sandstones, which are relatively poorly cemented and yield water from interconnected pore spaces. All of the municipal water supplies in the region, such as Watertown, Waterloo, Palmyra, and Ft. Atkinson, are obtained from the sandstone aquifer. In the Watertown region, the Ordovician Galena-Platteville Formation (predominantly dolomite) directly underlies the glacial drift and is

recharged by the downward percolation of surface water. The formation, although lithologically different, is believed to be hydraulically connected with the underlying sandstone and is, therefore, included within the sandstone aquifer.

The current water system is comprised of three regions: Central, West, and Northeast.

- The Central Region added to its system, in 2003, a new ground storage and booster station to maintain a constant supply and pressure. Well 6 was rehabilitated in 2014 and well 4 was rehabilitated in 2015.
- The West Region had well #9 refurbished and air blasted to improve flow in 2009. Air blasting did not prove to be effective so the well was dynamited in 2011. This re-established flow to be able to pump 1200 gallons per minute.
- The Northeast Region had an additional iron removal system and one booster pump added to it in 2003.

Our total available water and pumping capacity is approximately 12.5 million gallons per day (MGD). We chlorinate for disinfection, fluoridate for dental hygiene, use Sodium Hydroxide for lead and copper corrosion control at all sites, and use iron removal filters at three plants.

A water system comprises a variety of facilities and equipment designed to move water. The water must be pumped from wells to a reservoir located at a pumping station. The pumping station facilities aerate and filter the water and pump it into a treated water reservoir. The facilities must also provide pressure to move the water through a network of pipes, mains, valves, and hydrants; to water towers which hold water in reserve; and finally to the individual homes.

Educational Information

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 and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants 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 and wildlife.
- Inorganic contaminants such as salts and metals, which can be naturally-occurring or 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 can also come from gas stations, urban stormwater runoff and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which shall provide the same protection for public health.

Definitions

Term	Definition
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Level 1 Assessment	A Level 1 assessment is a study of the water system to identify potential problems and determine, if possible, why total coliform bacteria have been found in our water system.
Level 2 Assessment	A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine, if possible, why an E. coli MCL violation has occurred or why total coliform bacteria have been found in our water system, or both, on multiple occasions.
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.
MFL	million fibers per liter
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.
mrem/year	millirems per year (a measure of radiation absorbed by the body)
NTU	Nephelometric Turbidity Units
pCi/l	picocuries per liter (a measure of radioactivity)
ppm	parts per million, or milligrams per liter (mg/l)
ppb	parts per billion, or micrograms per liter (ug/l)
ppt	parts per trillion, or nanograms per liter

Term	Definition
ppq	parts per quadrillion, or picograms per liter
TCR	Total Coliform Rule
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Detected Contaminants

Your water was tested for many contaminants last year. We are allowed to monitor for some contaminants less frequently than once a year. The following tables list only those contaminants which were detected in your water. If a contaminant was detected last year, it will appear in the following tables without a sample date. If the contaminant was not monitored last year, but was detected within the last 5 years, it will appear in the tables below along with the sample date.

Disinfection Byproducts

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2016)	Violation	Typical Source of Contaminant
HAA5 (ppb)	D-1	60	60	6	6		No	By-product of drinking water chlorination
TTHM (ppb)	D-1	80	0	12.6	12.6		No	By-product of drinking water chlorination
HAA5 (ppb)	D-2	60	60	4	4		No	By-product of drinking water chlorination
TTHM (ppb)	D-2	80	0	4.2	4.2		No	By-product of drinking water chlorination

Inorganic Contaminants

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2016)	Violation	Typical Source of Contaminant
ARSENIC (ppb)		10	n/a	2	1 - 2	5/8/2014	No	Erosion of natural deposits; Runoff from orchards;

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2016)	Violation	Typical Source of Contaminant
								Runoff from glass and electronics production wastes
BARIUM (ppm)		2	2	0.120	0.086 - 0.120	5/5/2014	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
CYANIDE (ppb)		200	200	12	12	5/5/2014	No	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories
FLUORIDE (ppm)		4	4	0.7	0.6 - 0.7	5/8/2014	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
NICKEL (ppb)		100		3.6000	1.6000 - 3.6000	5/8/2014	No	Nickel occurs naturally in soils, ground water and surface waters and is often used in electroplating, stainless steel and alloy products.
NITRATE (N03-N) (ppm)		10	10	1.80	0.25 - 1.80		No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2016)	Violation	Typical Source of Contaminant
SODIUM (ppm)		n/a	n/a	5.60	3.70 - 5.60	5/8/2014	No	n/a

Radioactive Contaminants

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2016)	Violation	Typical Source of Contaminant
GROSS ALPHA, EXCL. R & U (pCi/l)		15	0	6.5	4.5 - 6.5	5/5/2014	No	Erosion of natural deposits
RADIUM, (226 + 228) (pCi/l)		5	0	3.6	2.5 - 3.6	5/5/2014	No	Erosion of natural deposits
GROSS ALPHA, INCL. R & U (n/a)		n/a	n/a	6.5	4.5 - 6.5	5/5/2014	No	Erosion of natural deposits

Unregulated Contaminants

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. EPA required us to participate in this monitoring.

Contaminant (units)	Level Found	Range	Sample Date (if prior to 2016)
SULFATE (ppm)	31.00	15.00 - 31.00	5/8/2014

EPA UCMR3
Testing required in 2014 nothing required in 2016

Contaminant	Value	Unit	Date	Location
strontium	595.955	µg/L	4/15/2014	West Treatment Plant
vanadium	0.214	µg/L	4/15/2014	West Treatment Plant
molybdenum	1.064	µg/L	4/15/2014	Northeast Treatment Plant
strontium	528.491	µg/L	4/15/2014	Northeast Treatment

				Plant
molybdenum	1.146	µg/L	4/15/2014	Central Treatment Plant
strontium	668.082	µg/L	4/15/2014	Central Treatment Plant
strontium	772.228	µg/L	4/15/2014	Distribution System
vanadium	0.203	µg/L	4/15/2014	Distribution System
molybdenum	1.087	µg/L	4/15/2014	Distribution System
strontium	526.906	µg/L	4/15/2014	Distribution System
molybdenum	1.111	µg/L	4/15/2014	Distribution System
strontium	588.84	µg/L	4/15/2014	Distribution System
molybdenum	1.31	µg/L	10/20/2014	West Treatment Plant
strontium	736.227	µg/L	10/20/2014	West Treatment Plant
molybdenum	1.165	µg/L	10/20/2014	Northeast Treatment Plant
strontium	450.909	µg/L	10/20/2014	Northeast Treatment Plant
molybdenum	1.378	µg/L	10/20/2014	Central Treatment Plant
strontium	748.176	µg/L	10/20/2014	Central Treatment Plant
molybdenum	1.275	µg/L	10/20/2014	Distribution System
strontium	699.894	µg/L	10/20/2014	Distribution System
molybdenum	1.107	µg/L	10/20/2014	Distribution System
strontium	440.221	µg/L	10/20/2014	Distribution System
molybdenum	1.298	µg/L	10/20/2014	Distribution System
strontium	646.366	µg/L	10/20/2014	Distribution System

Strontium

Part of the EPA UCMR3 Testing – Strontium is a natural occurring element found in minerals that currently has no MCL limit. EPA has created a health reference level which is 1500 ug/L

Health effects for any contaminants with MCL violations/Action Level Exceedances

Contaminant Health Effects

LEAD Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental

Contaminant Health Effects

development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Additional Health Information

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. Watertown Waterworks 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 1-800-426-4791 or at www.epa.gov/safewater/lead.