2006 Safe Drinking Water Report

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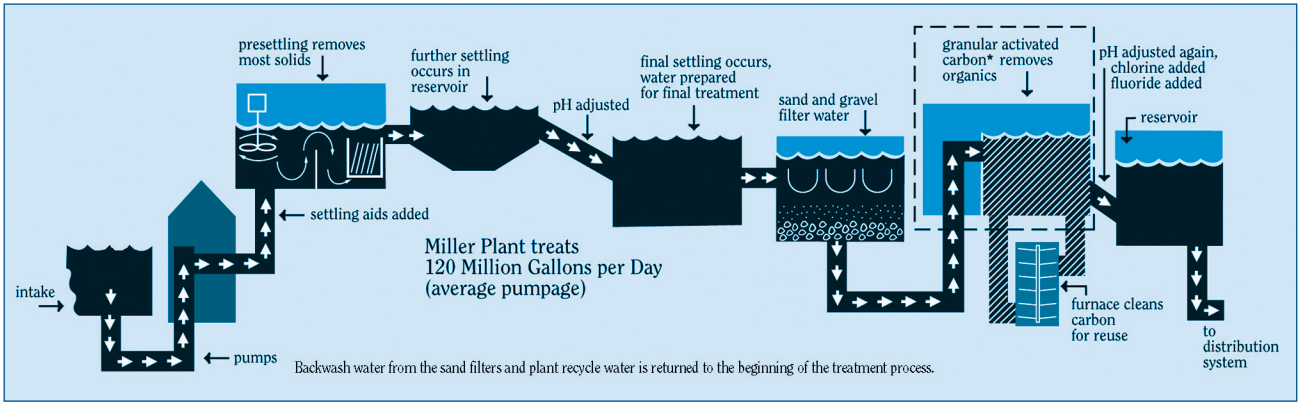
GREATER CINCINNATI
WATER WORKS
A Service of The City of Cincinnati

CCR06

1. Our State-of-the-Art Treatment Processes

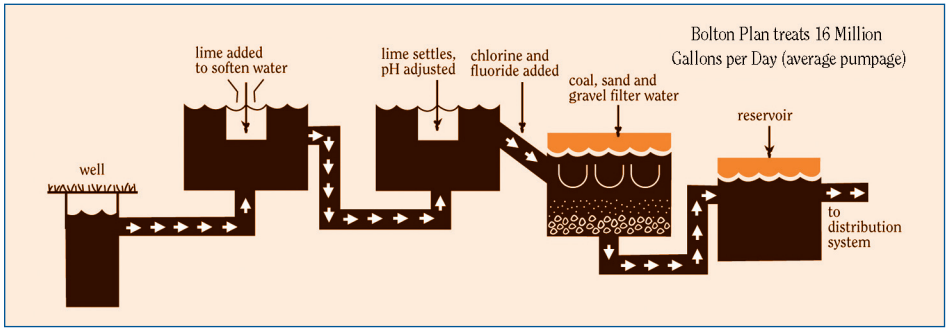
Greater Cincinnati Water Works (GCWW) is proud to present the 2006 Safe Drinking Water Report. This report shows that in 2006 GCWW met or exceeded all state and federal health standards for drinking water, as it always has.

The Treatment Process at the Miller Plant on the Ohio River



The major source of GCWW's water is the Ohio River, which is treated at the Miller Plant. GCWW uses the latest treatment techniques in its state-of-the-art facilities. Granular Activated Carbon (GAC)* treatment at Miller gives GCWW an edge in water quality management. GAC allows us to use substantially less chlorine in the treatment process. GCWW has one of the largest GAC facilities in the U.S.

The Treatment Process at the Bolton Plant on the Great Miami Aquifer



GCWW uses source water from its Bolton Well Field in the Great Miami Aquifer. It is located in the portion of the aquifer served by the Hamilton to New Baltimore Consortium, which has developed an award-winning source water protection program to protect the aquifer.

An aquifer is buried sand and gravel filled with water.

2. Where Does My Drinking Water Come From?

Greater Cincinnati Water Works (GCWW) supplies water from two sources:

- The **Miller Treatment Plant** treats surface water from the Ohio River. This plant supplies about 88% of drinking water to GCWW's customers.
- The **Bolton Treatment Plant** treats groundwater from ten wells in the Great Miami Aquifer and is located in the southern part of Butler County. This plant supplies about 12% of drinking water to GCWW's customers.

Water from the Miller and Bolton Treatment Plants is delivered to customers in an open distribution system, which means it is mixed in the water mains. The border on the map is the dividing line under most typical operating conditions, although water from either plant may go miles beyond this border.

Water — A Precious Resource

The first step in providing a plentiful supply of the highest quality drinking water is source water protection.

Ohio River

Most of GCWW's customers receive water from the Miller Treatment Plant (see map at right), which treats water from the Ohio River. As with all surface waters, Ohio Environmental Protection Agency (OEPA) has classified the Ohio River as highly susceptible to contamination. This is because it is open to the environment and pollution may spread quickly with the flow of the river. To address this, GCWW has several barriers between potential pollution and your tap water. The first barrier, a source water protection program, is designed to prevent and monitor contamination in the river. GCWW works with ORSANCO and other utilities to monitor contamination in the river (see box at right).

GCWW has several options to protect the drinking water, ranging from turning off the intake and using only stored water until pollution passes, to altering a treatment process to remove the contamination.

Finally, GCWW is one of only a few water treatment plants in the nation that has included granular activated carbon (GAC) into our daily treatment process. GAC has been recognized as the best available technology for removing the most common chemicals found in spills on the Ohio River.

Great Miami Aquifer

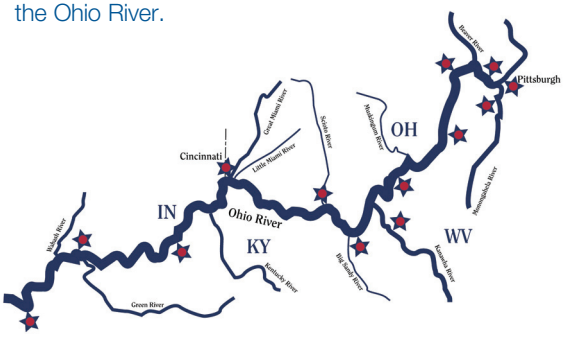
GCWW's Bolton Plant treats groundwater from the Great Miami Aquifer and provides water to the northwestern area of Hamilton County and parts of Warren and Butler Counties. Ohio EPA has classified Bolton water as having a high susceptibility to contamination because the Great Miami Aquifer does not have a protective clay layer, the water is shallow, there are potential contaminant sources nearby, and there are low levels of nitrates in the aquifer. This does not mean that the aquifer is contaminated, only that it is vulnerable to contamination.

Cincinnati recognized the vulnerability of the aquifer over a decade ago and has worked hard as a member of the Hamilton to New Baltimore Groundwater Consortium to develop an award-winning source water protection program (www.gwconsortium.org) to protect the aquifer.

For more information about source water protection or to find out what you can do to help, call (513) 624-5611 or email info@gcww.cincinnati-oh.gov.

Source Water Monitoring — Ohio River

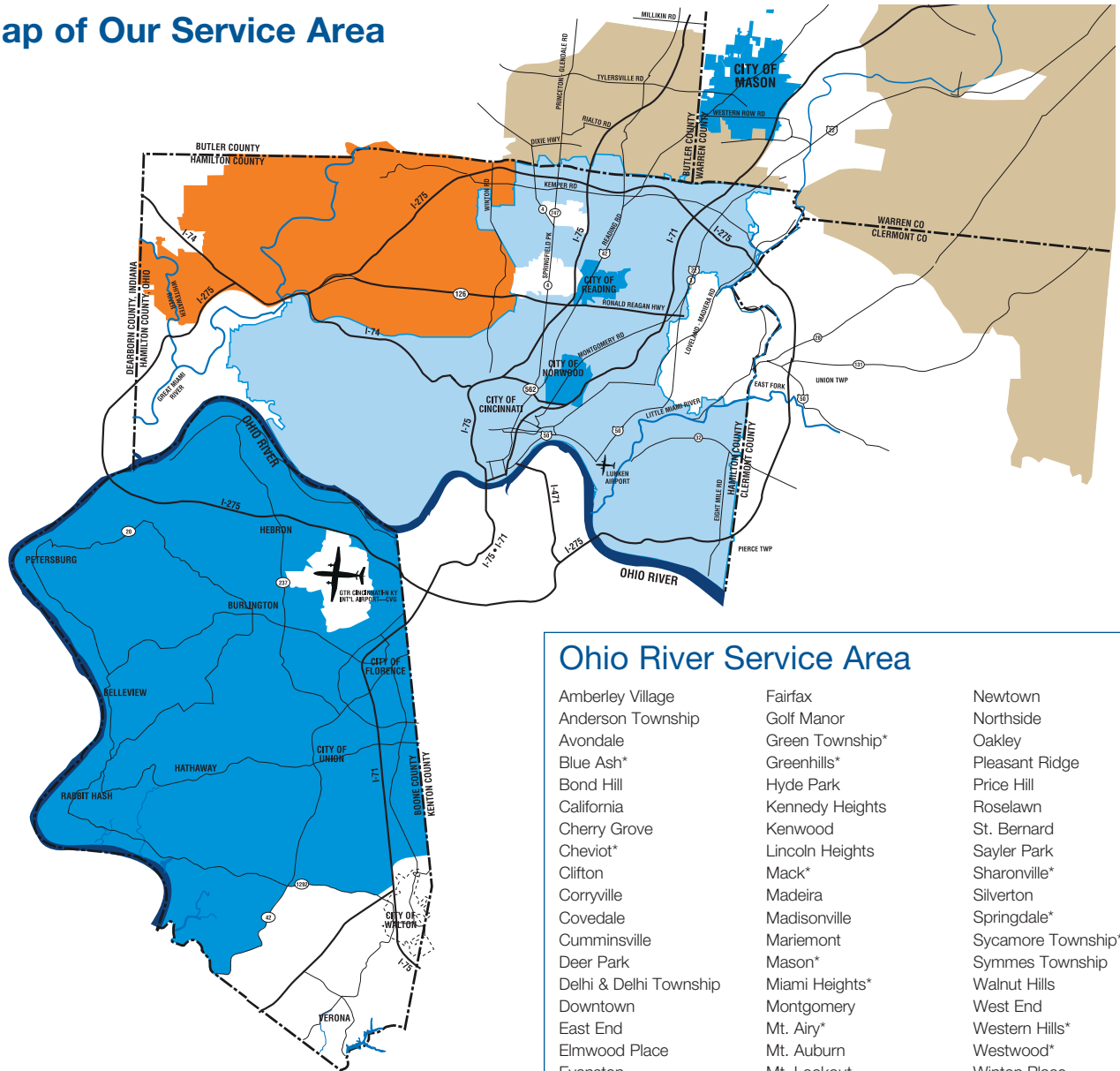
GCWW is served by a coordinated early warning organic detection system — the first such system in the United States. The system warns treatment plants downstream about spills so they can take preventative measures before the spill reaches their intakes. Water utilities along the Ohio River developed the system in conjunction with ORSANCO (Ohio River Valley Water Sanitation Commission). Thirteen monitoring stations are strategically located along the Ohio River.



ORSANCO Monitoring Stations Along the Ohio River

(Ohio River Valley Water Sanitation Commission — http://www.orsanco.org)

3. Map of Our Service Area



Legend

- Miller Plant Service Area. (Provides 88% of GCWW water)
- Bolton Plant Service Area. (Provides 12% of GCWW water)
- Wholesale* areas served by Miller Plant using only GCWW water.
- Wholesale* areas served by Miller & Bolton Plants. These wholesale customers may mix GCWW water with water from their own sources.
- Areas not served by GCWW.

**GCWW sells water to municipalities, counties and a rural water association who distribute, meter and bill for the water.*

Ohio River Service Area

Amberley Village
Anderson Township
Avondale
Blue Ash*
Bond Hill
California
Cherry Grove
Cheviot*
Clifton
Corryville
Covedale
Cumminsville
Deer Park
Delhi & Delhi Township
Downtown
East End
Elmwood Place
Evanston
Evendale
Fairfax
Golf Manor
Green Township*
Greenhills*
Hyde Park
Kennedy Heights
Kenwood
Lincoln Heights
Mack*
Madeira
Madisonville
Mariemont
Mason*
Miami Heights*
Montgomery
Mt. Airy*
Mt. Auburn
Mt. Lookout
Mt. Washington
Newtown
Northside
Oakley
Pleasant Ridge
Price Hill
Roselawn
St. Bernard
Sayler Park
Sharonville*
Silverton
Springdale*
Sycamore Township*
Symmes Township
Walnut Hills
West End
Western Hills*
Westwood*
Winton Place
Woodlawn

Great Miami Aquifer Service Area

Blue Jay
Colerain Township
College Hill*
Crosby Township
Dent*
Finneytown*
Forest Park*
Miamitown
Monfort Heights*
Mt. Healthy*
New Burlington
North College Hill
Northgate
Pleasant Run
Springfield Township
Venice Gardens
White Oak*
White Water Township

**These communities may get water from both the Miller and Bolton Plants.*

4. GCWW Water Meets All Health Standards

Greater Cincinnati Water Works (GCWW) continues to bring you a plentiful supply of the highest quality water. In fact, you'll be happy to know that your drinking water has always met or exceeded all of the state and federal health standards for drinking water. GCWW uses state-of-the-art treatment techniques to remove contaminants from the water and continuously monitors water quality throughout the system. 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 Federal Environmental Protection Agency's (USEPA) Safe Drinking Water Hotline at (800) 426-4791. In order to ensure that tap water is safe to drink, USEPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which shall provide the same protection for public health. The tables below show the substances detected in GCWW drinking water while performing the most up-to-date monitoring required by EPA. The Ohio EPA requires us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, are more than one year old. The substances found were present in quantities less than EPA limits for safe drinking water. GCWW tests for many more substances that consistently meet all state and federal health standards for drinking water. If you would like a complete listing of GCWW test results, call (513) 591-7700 and press 0.

Regulated Contaminants Substances subject to a Maximum Contaminant Level (MCL), Action Level (AL) or Treatment Technique (TT)*. These standards protect drinking water by limiting the amount of certain substances that can adversely affect public health and are known or anticipated to occur in public water systems.

2006 Report			Miller Water (from the Ohio River)				Bolton Water (from the Great Miami Aquifer)				Typical Source of Contamination (for more details, visit www.epa.gov/safewater/hfacts.html)
Substance (Unit)	Maximum Allowed (MCL*)	MCLG*	Highest Compliance Level Detected	Range of Detections	Violation	Year Sampled	Highest Compliance Level Detected	Range of Detections	Violation	Year Sampled	
Fluoride (ppm)	4	4	1.02	0.87 - 1.15	No	2006	1.02	0.87 - 1.09	No	2006	Additive which promotes strong teeth. May come from erosion of natural deposits.
Nitrate (ppm)	10	10	1.68	0.55 - 1.68	No	2006	2.69	1.17 - 2.69	No	2006	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits.
Total Trihalomethanes (ppb)	80	na	40.0	12.3 - 68.7	No	2006	33.1	17.5 - 57.4	No	2006	Byproduct of drinking water disinfection, measured in the distribution system.
Haloacetic Acids (ppb)	60	na	11.2	2.09 - 21.2	No	2006	8.89	2.22 - 13.9	No	2006	Byproduct of drinking water disinfection, measured in the distribution system.
Gross Beta (pCi/L)	50	0	nd	nd	No	2003	4.8	na	No	2001	Decay of natural and man-made deposits. (EPA considers 50 pCi/L to be the level of concern.)
Turbidity (NTU)	TT1 < 1 NTU Max *and* TT2 < 0.3 NTU 95% of the time	na na	0.10 100%<0.3 NTU	0.04 - 0.10	No	2006	nr	nr	na	na	Soil runoff.
Lead[2] (ppb)	AL = 15	0	*90th percentile* 8.1	na	No	2006	*90th percentile* 8.1	na	No	2006	May come from erosion of natural deposits. There is no detectable lead in our water as it leaves the treatment plants. However, corrosion of household plumbing is a source of lead and copper contamination. GCWW tests water samples collected at customer taps, as required by the Safe Drinking Water Act to ensure safe water.
			(3 out of 107 samples tested were > the AL)				(3 out of 107 samples tested were > the AL)				
Copper[2] (ppm)	AL = 1.3	1.3	*90th percentile* 0.0328	na	No	2006	*90th percentile* 0.0328	na	No	2006	
			(0 out of 107 samples tested were > the AL)				(0 out of 107 samples tested were > the AL)				
Total Organic Carbon	TT[1]	na	2.07	1.44 - 3.56	No	2006	nr	nr	na	na	Naturally present in the environment.
Total Chlorine[2] (ppm)	MRDL=4	MRDLG=4	0.94	0.85 - 1.00	No	2006	0.94	0.85 - 1.00	No	2006	Water additive used to control microbes.
Total Coliform Bacteria[2] (% positive)	5%	0	0.3%[3]	0 - 0.3%	No	2006	0.3 %[3]	0 - 0.3 %	No	2006	Naturally present in the environment.
Barium (ppm)	2	2	0.0351	na	No	2006	0.0106	na	No	2006	Erosion of natural deposits; Discharge of drilling wastes; Discharge from metal refineries.

Unregulated Contaminants Substances for which EPA requires monitoring to determine where certain substances occur and whether it needs to regulate those substances.

2006 Report		Miller Water				Bolton Water				Typical Source of Contamination
Substance (Unit)	MCLG*	Avg. Level Detected	Range of Detections	Violation	Year Sampled	Avg. Level Detected	Range of Detections	Violation	Year Sampled	
Chloroform (ppb)	na	2.20	na	na	2006	2.18	na	na	2006	Byproducts of drinking water disinfection, measured at the point of entry to distribution system
Bromodichloromethane (ppb)	0	2.76	na	na	2006	4.50	na	na	2006	
Dibromochloromethane (ppb)	60	2.73	na	na	2006	6.42	na	na	2006	
Bromoform (ppb)	0	nd	na	na	2006	3.63	na	na	2006	
Sulfate (ppm)	na	66	40 - 77	na	2006	50	48-52	na	2004	Erosion of natural deposits

Foot Notes

1 The value reported under "Highest Compliance Level Detected" for Total Organic Carbon (TOC) is the lowest ratio between percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than one (1) indicates that the water system is in compliance with TOC removal requirements. A value of less than one (1) indicates a violation of the TOC removal requirements. **2** Miller and Bolton were considered as one distribution system for regulatory purposes by Ohio EPA during 2006. Data listed for each system represents the combined distribution system. **3** In 2006 only 3 of 3,577 distribution samples were positive for coliform bacteria. The repeat samples were negative.

Abbreviations

ppb: parts per billion or micrograms per liter ppm: parts per million or milligrams per liter nr: not regulated na: not applicable NTU: Nephelometric Turbidity Unit, used to measure clarity in drinking water nd: not detectable at testing limits pCi/L: picoCuries per liter, a measure of radioactivity in water

*Definitions

Maximum Contaminant Level Goal or MCLG: 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.

Maximum Contaminant Level or MCL: 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.

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

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

Maximum Residual Disinfection Level or MRDL: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfection Level Goal or MRDLG: The level of 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.

Radon: Radon is a radioactive gas that occurs naturally in some ground water. It may pose a health risk when the gas is released from water into air, as occurs during showering, bathing, or washing dishes or clothes. Radon gas released from drinking water is a relatively small part of the total radon in air. Major sources of radon gas are soil and cigarettes. Inhalation of radon gas has been linked to lung cancer, however, the effects of radon ingested in drinking water are not yet clear. If you are concerned about radon in your home, tests are available to determine the total exposure level. GCWW monitored for radon in Bolton finished water during 2001. One sample was collected and the radon level was 200 pCi/L. This was less than the USEPA proposed MCL of 300 pCi/L for radon. For additional information on how to have your home tested, call (800) SOS-RADON.

Turbidity: Utilities who treat surface water are required to report on turbidity as an indication of the effectiveness of the filtration system. Turbidity is a measure of the cloudiness of water. The turbidity limit set by the EPA is 0.3 NTU in 95% of the daily samples and shall not exceed 1 NTU at any time. As reported in the table, GCWW's highest recorded turbidity result for 2006 was 0.10 NTU (Miller Water) and lowest monthly percentage of samples meeting the turbidity limits was 100%.

The "<" symbol: A symbol which means less than. A result of <5 means that the lowest level that could be detected was 5 and the contaminant in that sample was not detected.

Frequently Asked Questions

Our Priority: Safe Drinking Water

Greater Cincinnati Water Works (GCWW) performs an average of 600 tests per day throughout the system to ensure safe drinking water.

- Source waters are tested routinely to detect contaminants before they enter treatment plants.
- Water quality experts test the water after each stage of the treatment process.
- Water samples are collected in the distribution system to monitor the quality of water once it has left the treatment plant.
- Monitors are located throughout our treatment plants and in the distribution system to continuously monitor the water quality.

What do the results of the water quality tests really mean for my family?

The bottom line is that our water meets or exceeds every health standard developed by the USEPA to ensure safety of the drinking water. Customers may also visit the USEPA online at www.epa.gov/safewater for additional information on understanding your drinking water.

How hard is GCWW water?

First let us explain "hard water." Calcium and magnesium salts are the minerals in water that are responsible for its hardness. Groundwater tends to contain more of these minerals than surface water because they are present in the rocks and aquifer. Miller Plant has an average hardness of 125 milligrams per liter or 7 grains per gallon. Bolton Plant water has an average hardness of 146 milligrams per liter or 9 grains per gallon. Hardness does not affect the safety of water.

Why is fluoride added to the water?

Fluoride is added to the water to protect teeth as required by state law passed in 1970. According to the American Dental Association, persons who drink fluoridated water have a 40% to 50% reduction in the number of cavities that would have occurred without fluoride. Some home filtration devices remove fluoride. Bottled water may not contain fluoride.

Sometimes my water is reddish-brown. Is this safe?

The reddish-brown color can be caused by rust from corrosion in GCWW's pipes, the pipes in your home, or from corrosion in your home's water heater. This is not a health concern; the water meets all health-based regulations. If you have questions, or your laundry is stained from rusty water, call GCWW (513) 591-7700. We will deliver a laundry aid to remove the rust. Do NOT put stained laundry in the dryer. If you have rusty water, try running cold water slowly for several minutes.

Why does drinking water sometimes look cloudy?

Cloudy water that clears quickly from the bottom up is caused by tiny air bubbles in the water similar to gas bubbles in soda. After a while, the bubbles rise to the top and disappear. This cloudiness occurs more often in the winter when drinking water is cold. Air does not affect the safety of water. If you have questions, call (513) 591-7700.

Why is water treatment so important?

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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally occurring or can be the result of oil and gas production and mining activities.

For all these reasons, we treat the water using state-of-the-art technology and test the water frequently to ensure the best quality of water for our customers.

Minerals in hard water may accumulate in dishes like coffee pots. To remove them, fill the coffee pot with vinegar and let it sit overnight. Then rinse the pot thoroughly before using. Vinegar will also work as a soak for clogged shower heads and faucet aerators.

For More Information

GCWW drinking water: (513) 591-7700 • www.cincinnati-oh.gov/gcww

The Food and Drug Administration (FDA) is responsible for regulating bottled water. For information about bottled water regulations, contact the FDA at: (888) 723-3366 • www.fda.gov

For information about home treatment devices, contact the National Sanitation Foundation (NSF): (800) 673-8010 • www.nsf.org • info@nsf.org

USEPA Safe Drinking Water Hotline: (800) 426-4791

Drinking water regulations: (800) 426-4791 • www.epa.gov/ogwdw

Health Information

Cryptosporidium:

GCWW has tested for Cryptosporidium (Crypto) in treated water and has never detected it. Crypto is a microscopic organism that, when ingested, can result in diarrhea, fever and other gastrointestinal symptoms. The organism is found in surface waters and comes from animal and human wastes which enter the watershed. Crypto is eliminated by an effective treatment combination including sedimentation, filtration and disinfection.

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 can be particularly at risk of infections. These people should seek advice about drinking water from their health care providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the USEPA Safe Drinking Water Hotline: (800) 426-4791.

Lead:

There is no detectable lead in our drinking water as it leaves the treatment plants. It is possible that lead levels in your home may be higher than in other homes in the community because of your home's pipes and plumbing fixtures. Infants and young children are typically more vulnerable to lead in drinking water than other people.

Flushing your tap for up to three minutes before using the water and using only cold water for cooking are helpful. If you have questions about lead, please call (513) 591-7700.

Sodium in Our Drinking Water

Miller Water		Bolton Water	
mg per Liter*	% Daily Value**	mg per Liter*	% Daily Value**
25 mg	1%	31 mg	1%

*Amounts are for a liter of water as it leaves the treatment plant. There are approximately 4 cups in a liter.

**Percent Daily Values are based on a 2,000 calorie diet.

mg = milligram

GREATER CINCINNATI
WATER WORKS

A Service of The City of Cincinnati

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Contact Us

For more information about water quality, customer billing, or to request additional copies or submit comments about this report, call (513) 591-7700.

Visit Us Online

www.cincinnati-oh.gov/gcww

Just for Educators

Visit our Teacher's Page for special education resources online.

Participate in Water Decisions

You may attend any of the following meetings:

- City of Cincinnati Council
  Call (513) 352-3246 or visit
  www.cincinnati-oh.gov for more details
- Hamilton to New Baltimore
  Groundwater Consortium
  Call (513) 785-2464
- OKI Regional Council of Governments
  Groundwater Committee
  Call (513) 621-6300

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This report meets the USEPA's National Primary Drinking Water Regulation for Consumer Confidence Reports.