WATER QUALITY REPORT 2011

Great measures that provide you and your family the highest quality water.
Greater Cincinnati Water Works (GCWW) provides a plentiful supply of the highest quality drinking water to more than 1.1 million people in parts of Hamilton, Butler, Warren and Clermont Counties in Ohio and Boone County, Kentucky.

Where your water comes from

GCWW supplies water from two sources: the Ohio River and the Great Miami Aquifer. Surface water from the Ohio River is treated at the Miller Treatment Plant. This plant, located on the east side of Hamilton County, supplies about 88% of drinking water to GCWW's customers.

The Bolton Treatment Plant treats ground water from twelve wells in the Great Miami Aquifer. It is located in the southern part of Butler County and supplies about 12% of drinking water to GCWW customers.
Our state-of-the-art treatment processes

Before the water comes to your tap, GCWW takes many steps to ensure its quality and safety. Our priority is safe drinking water. On average, we perform 600 tests a day throughout the treatment process and distribution system to ensure you receive the highest quality water possible.

THE TREATMENT PROCESS AT THE MILLER PLANT ON THE OHIO RIVER

Backwash water from the sand filters and plant recycle water is returned to the beginning of the treatment process.

The TreATMenT ProceSS AT The Miller PlAnT on The ohio river

GCWW’s Miller Treatment Plant is one of only a few water treatment plants in the nation that incorporates granular activated carbon (GAC) with on-site reactivation into its water treatment process. This state-of-the-art technology uses granular carbon which contains numerous microscopic cavities. When water is passed through the GAC, impurities adhere to the carbon and are removed from the water. Benefits of GAC are: barrier against potential chemical spills in the Ohio River; barrier against impurities in raw source water; less chlorine required for disinfection; reduced disinfection-by-products; and improved control of taste and odor.

UV, A BriGhT liGhT in our fuTure

Greater Cincinnati Water Works is constructing an ultraviolet (UV) disinfection treatment facility at the Miller Plant. UV disinfection uses UV light, in low doses, to inactivate disease-causing organisms such as Cryptosporidium. Once completed, GCWW will be the largest water utility in North America to use UV disinfection following sand filtration and GAC adsorption to protect public health.

A leader in water quality technology

GCWW typically treats 133 million gallons of water a day.
Source water protection

The sources of drinking water — both tap 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. As a result, the Ohio Environmental Protection Agency has classified all surface waters as highly susceptible to potential contamination. The Bolton Well Field, a ground water source, is also highly susceptible to contamination because the well field doesn’t have a protective clay layer, ground water has low levels of nitrate and there are potential contaminant sources nearby. 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 agricultural, 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 be the result of oil and gas production and mining activities.

For more information about source water protection or to find out what you can do to help, call (513) 591-7700 or email info@gcww.cincinnati-oh.gov.

To reduce the potential of contamination in its source water, GCWW has helped establish two environmental protection programs:

**ORSANCO, EARLY WARNING DETECTION SYSTEM — OHIO RIVER (Ohio River Valley Water Sanitation Commission)**

Thirteen monitoring stations, strategically placed along the Ohio River, detect and warn treatment plants downstream about spills so they can take precautionary measures before the spill reaches their intake. Established in 1978, this coordinated early warning system was the first of its kind in the country. For more information, visit www.orsanco.org.

**HAMILTON TO NEW BALTIMORE GROUNDWATER CONSORTIUM — GREAT MIAMI AQUIFER**

This group, comprised of seven public and industrial ground water producers/suppliers in southwest Ohio, maintains a network of early warning monitoring stations, works with facilities that store hazardous substances to minimize the risk of spills, and educates the public on what they can do to protect ground water. For more information, visit www.gwconsortium.org.
GCWW met or exceeded all state and federal health standards

GCWW is proud to say that our water meets or exceeds every health standard developed by both the USEPA and Ohio EPA. 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 the 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. Because of this, some of our data, though accurate, is more than one year old. For 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.

<table>
<thead>
<tr>
<th>Substance (Unit)</th>
<th>Maximum Allowed (MCL)</th>
<th>MCLG*</th>
<th>Highest Compliance Level Detected</th>
<th>Range of Detections</th>
<th>Violation</th>
<th>Year Sampled</th>
<th>Highest Compliance Level Detected</th>
<th>Range of Detections</th>
<th>Violation</th>
<th>Year Sampled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoride (ppm)</td>
<td>4</td>
<td>4</td>
<td>0.93</td>
<td>0.77 - 1.04</td>
<td>No</td>
<td>2011</td>
<td>0.82</td>
<td>0.77 - 1.02</td>
<td>No</td>
<td>2011</td>
</tr>
<tr>
<td>Nitrate (ppm)</td>
<td>10</td>
<td>10</td>
<td>1.06</td>
<td>0.62 - 1.06</td>
<td>No</td>
<td>2011</td>
<td>1.86</td>
<td>na</td>
<td>na</td>
<td>2011</td>
</tr>
<tr>
<td>TTHM* (ppb) [Trihalomethanes]</td>
<td>80</td>
<td>na</td>
<td>46.6</td>
<td>17.9 - 76.5</td>
<td>No</td>
<td>2011</td>
<td>33.7</td>
<td>17.5 - 47.5</td>
<td>No</td>
<td>2011</td>
</tr>
<tr>
<td>HAAs* (ppb) [Halocarbonic Acids]</td>
<td>60</td>
<td>na</td>
<td>11.8</td>
<td>3.42 - 20.6</td>
<td>No</td>
<td>2011</td>
<td>8.28</td>
<td>1.57 - 12.0</td>
<td>No</td>
<td>2011</td>
</tr>
<tr>
<td>Turbidity (NTU)</td>
<td>TTV &gt; 0.3 NTU Max and TTV &lt; 0.3 NTU 50% of the time</td>
<td>na</td>
<td>0.19</td>
<td>0.05 - 0.13</td>
<td>No</td>
<td>2011</td>
<td>nr</td>
<td>nr</td>
<td>nr</td>
<td>2011</td>
</tr>
<tr>
<td>Lead* (ppb)</td>
<td>AL = 15</td>
<td>0</td>
<td>0.00%</td>
<td>4.4</td>
<td>na</td>
<td>2011</td>
<td>90% percentile</td>
<td>4.4</td>
<td>na</td>
<td>2011</td>
</tr>
<tr>
<td>Copper* (ppm)</td>
<td>AL = 1.3</td>
<td>1.3</td>
<td>0.00%</td>
<td>1.05</td>
<td>na</td>
<td>2011</td>
<td>90% percentile</td>
<td>1.05</td>
<td>na</td>
<td>2011</td>
</tr>
<tr>
<td>Total Organic Carbon</td>
<td>TT</td>
<td>na</td>
<td>1.95</td>
<td>1.41 - 3.23</td>
<td>No</td>
<td>2011</td>
<td>nr</td>
<td>nr</td>
<td>nr</td>
<td>2011</td>
</tr>
<tr>
<td>Total Chlorine* (ppm)</td>
<td>MRL-D=4</td>
<td>MRLD=G=4</td>
<td>1.05</td>
<td>0.89 - 1.15</td>
<td>No</td>
<td>2011</td>
<td>1.05</td>
<td>0.89 - 1.15</td>
<td>No</td>
<td>2011</td>
</tr>
<tr>
<td>Barium (ppm)</td>
<td>2</td>
<td>2</td>
<td>0.052</td>
<td>na</td>
<td>na</td>
<td>2011</td>
<td>0.021</td>
<td>na</td>
<td>na</td>
<td>2011</td>
</tr>
</tbody>
</table>

*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 and allow for a margin of safety.
- Maximum Residual Disinfection Level Goal or MRDLG: 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 or MRDL: The highest level of a disinfectant allowed in drinking water. This value allows for a margin of safety to ensure that disinfectant levels are maintained at the point of entry to distribution system.

Typical Source of Contamination
- Byproducts of drinking water disinfection, measured at the point of entry to distribution system.

Typical Source of Contamination (for more details, visit www.epa.gov/safewater/facts.html)

UNREGULATED CONTAMINANTS | Substances for which EPA requires monitoring to determine where certain substances occur and whether it needs to regulate those substances.

Foot Notes
- ppb or parts per billion or micrograms per liter or µg/L parts per million or milligrams per liter or mg/L not regulated (nc) not applicable (nc) Regulations: Turbidity, used to measure clarity in drinking water, not detectable at testing limits. MCL or Lead/Copper, per liter, a measure of turbidity in water. TTHM, Total Trihalomethanes. HAAs, Halocarbonic Acids.

Fast Notes
- The value reported under “Highest Compliance Level Detected” for Total Organic Carbon (TOC) is the lowest ratio between measured TOC and the TOC removal requirements. A value less than one indicates a reduction of TOC removal requirements.
- Miller and Bolton were considered as one distribution system for regulatory purposes by Ohio EPA during 2011. Data listed for Bolton Water (from the Great Miami Aquifer) and Miller Water (from the Ohio River) are combined for regulatory purposes.

Abbreviations
- ppb: parts per billion or micrograms per liter or µg/L parts per million or milligrams per liter or mg/L not regulated (nc) not applicable (nc) ppm: parts per million or milligrams per liter or µg/L parts per million or milligrams per liter or mg/L not regulated (nc) not applicable (nc) pCi/l: picocuries per liter, a measure of radioactivity in water

Detected
- Maximum Residual Disinfection Level Goal or MRDLG: The level of disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary for control of microbial contaminants.
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Why tap water delivers.
GCWW has a terrific responsibility in providing water to the families in our community. It’s one we do not take lightly. We know our water must be safe, affordable and there when you need it.

In addition to all the processes documented in this report, GCWW has been actively involved in national and international research efforts to develop new ways to treat and test our water. Why tap water delivers.

FREQUENTLY ASKED QUESTIONS

IF THERE ARE REPORTED CONTAMINANTS, HOW CAN MY WATER BE SAFE?
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. However, some people may be more vulnerable to contaminants in drinking water than the general population.

• Our tap water is constantly checked for biological and chemical contaminants while bottled water is not.
• Most brands of bottled water are essentially bottled tap water. In the U.S., bottled water costs between $0.25 and $2 per bottle, while tap water costs less than $0.01.
• Drinking tap water will reduce the average time you spend in the restroom by 25 minutes. On average, people consume 4 cups of water per day.
• Drinking tap water also eliminates greenhouse gas emissions, air pollution, and fossil fuel consumption required for the transportation of bottled water.

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WHAT IS CRYPTOPODISPORIDUM?
Cryptosporidium (Crypto) is a microscopic organism, that when ingested, can result in diarrhea, fever and other gastrointestinal symptoms. Crypto is found in surface waters and comes from animal and human waste. GCWW routinely tests for Crypto and did not detect it in either our source or finished water in 2011. USEPA/CDC 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.

IS THERE LEAD IN MY WATER?
There is no detectable lead in our drinking water as it leaves our treatment plants. 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. GCWW 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 3 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. A list of laboratories certified in the State of Ohio to test for lead may be found at http://www.epa.ohio.gov/ddagw or by calling 614-664-2752.

HOW CAN MY WATER BE SAFE?
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. However, 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 from infections. These people should seek advice about drinking water from their healthcare providers. 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.

What’s the difference between GCWW’S water and bottled water?
GCWW has tested for sodium in treated water and has found 36 mg (milligrams) per liter in the Miller water and 28 mg per liter in the Bolton water. There are approximately 4 cups in a liter.

HOW HARD IS GCWW’S WATER?
Hard water is water that contains more minerals such as calcium and magnesium. Ground water tends to have higher mineral content than surface water because minerals are present in the rocks and aquifer. Water from GCWW’s Miller Plant has an average hardness of 132 milligrams per liter or 8 grains per gallon. Water from the Bolton Plant averages 152 milligrams per liter or 9 grains per gallon. Hardness does not affect the safety of water.

Why does GCWW’S 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.

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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.

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 or exceeds all health-based regulations. If you have rusty water, try running cold water for several minutes. If you have questions, or your laundry is stained from rusty water, call GCWW at 513-591-7700. We will deliver laundry aid to remove the rust. Do NOT put stained laundry in the dryer.

Fluoride is added to the water to protect teeth as required by state law passed in 1969. According to the American Dental Association, persons who drink fluoridated water have a 20% to 40% reduction in the number of cavities that would have occurred without fluoride. Some home filtration devices remove fluoride. Bottled water may not contain fluoride.

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Contact Us
GCWW has a current unconditioned license to operate our water system. 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 Teachers
GCWW has a Teacher Resource Center full of educational materials and resources.

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

• Hamilton to New Baltimore Groundwater Consortium
Call (513) 785-2464

• OKI Regional Council of Governments Groundwater Committee
Call (513) 621-6300

City of Cincinnati is an Equal Opportunity/Affirmative Action Employer.

For More Information
GCWW Drinking Water:
(513) 591-7700 • www.cincinnati-oh.gov/gcww

The Food and Drug Administration (FDA):
regulates bottled water.
(888) 723-3366 • www.fda.gov

National Sanitation Foundation (NSF):
for more information about home treatment devices.
(800) 673-8010 • www.nsf.org • info@nsf.org

USEPA Safe Drinking Water Hotline: (800) 426-4791
Drinking Water Regulations:
(800) 426-4791 • water.epa.gov/drink/index.cfm

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