

# Boone County Water District



## 2011 Water Quality Report

### Boone County Water District PWSID 0080034 ANNUAL DRINKING WATER QUALITY REPORT JULY 1, 2011

We're pleased to present to you this year's Annual Quality Water Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water.

We purchased our water in 2010 from the Boone Florence Water Commission (BFWC)/Greater Cincinnati Water Works (GCWW), which is treated surface water from the Ohio River. This 30 million gallon a day system should meet our future community needs past the year 2025.

If you have any questions about this report or concerning your water utility, please contact Phillip Trzop at 859-586-6155. I'm pleased to report that our drinking water is safe and meets federal and state requirements. We want our valued customers to be informed about their water quality. If you want to learn more, please attend any of our regularly scheduled meetings or visit our website at [www.boonewater.com](http://www.boonewater.com). Meetings are held on the second Monday of each month at the District Office located at 2475 Burlington Pike, Burlington at 12 0'Clock Noon.

The Boone County Water District routinely monitors for contaminants in your drinking water according to Federal and State laws. This table shows the results of our monitoring for the period of January 1st to December 31st, 2010.

**UCMR**  
**(Unregulated Contaminants Monitoring Rule)**  
UCMR monitoring was completed in 2010. There were no detections for any UCMR contaminants. Results are available upon request.

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

#### A SPECIAL NOTE

Thank you for allowing us to continue providing your family with clean, quality water this year. We have completed work on updating our 2004 Water Distribution System Analysis and Hydraulic Master Plan.

Greater Cincinnati Water Works performs an average of 300 tests per day throughout their system to ensure safe drinking water. Source waters are tested routinely to detect contaminants before they enter treatment plants. Water quality experts then test the water after each stage of the treatment process. Finally, water samples are collected in the distribution system to monitor the quality of the water once it has left the treatment plant.

Most of GCWW's customers receive water from the Miller Treatment Plant, which treats water from the Ohio River. As with all surface waters, Ohio EPA 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 Ohio River Valley Water Sanitation Commission (ORSANCO) and other utilities to monitor contamination in the river. 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.

**Source Water Assessment**  
A source water assessment has been completed. The following is a summary of the susceptibility analysis that is part of the source water assessment. Several areas of concern are related to the extensive development of transportation infrastructure, the potential for spills, high degree of impervious cover and polluted runoff. Areas of row crops and urban and recreational grasses introduce the potential for herbicide, pesticide, and fertilizer use – possible non-point source contaminants. Bridges, railroads, ports, waste handlers or generators, and Tier II hazardous chemical users in the area introduce the potential for spills or leaks of hazardous materials. Landfills and permitted discharges are relatively high in

#### Water Source Information Drinking Water Regulations

#### Health Information

Cryptosporidium (Crypto) is a microscopic organism that, when ingested, can result in diarrhea, fever and other gastrointestinal symptoms. GCWW has tested for Crypto in treated waters and has never detected it. The organism is found in GCWW source water and comes from animal wastes in the watershed. Crypto is eliminated by an effective treatment combination including sedimentation, filtration, and disinfection. 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. Boone County Water District 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 <http://www.epa.gov/safewater/lead>.

“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 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 Safe Drinking Water Hotline (800) 426-4791.”

number for a supply area. Other areas of concern include several segments of streams already assessed as having impairments; power line right-of-way with potential herbicide use, and residential septic systems located throughout the watershed. Since the intake is in an urban area, the threat of underground storage tanks leaking must also be taken into account. The entire report is available at Northern Kentucky Area Development District, 22 Spiral Drive, Florence, Ky 41042. Phone: 859-283-1885.

**What contaminants could be in source water?**  
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 may 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, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.  
**Inorganic contaminants**, such as salts and metals, that may 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 may also come from gas stations, urban stormwater runoff, and septic systems.

**Radioactive contaminants**, which may be naturally-occurring or be the result of oil and gas production and mining activities.  
To ensure that tap water is safe to drink, U.S. EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems.

U.S. FDA regulations establish limits for contaminants in bottled water that shall provide the same protection for public health.

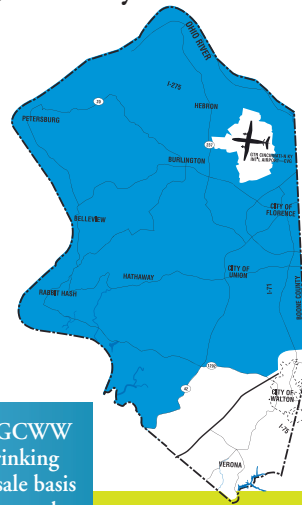
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects may be obtained by calling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

Hotline at 800-426-4791.



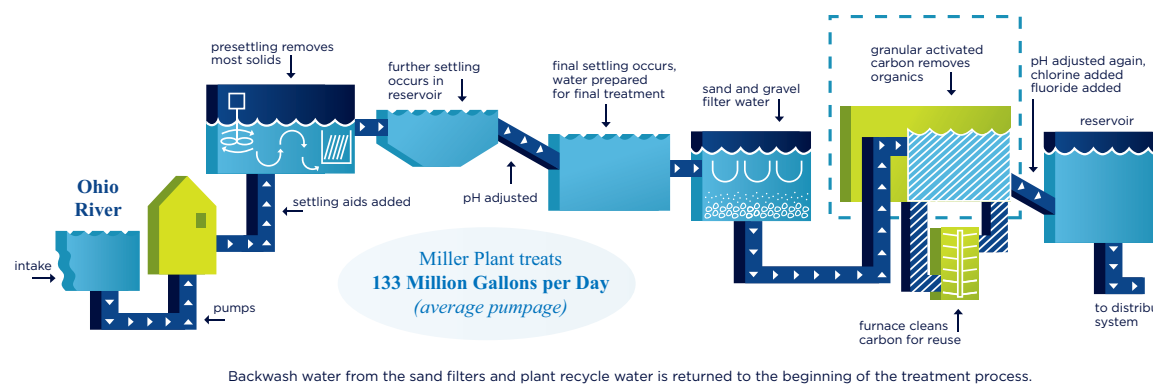
# Boone County Water District

2475 Burlington Pike  
Burlington, Kentucky 41005-0018



In March 2003, GCWW began selling drinking water on a wholesale basis to Boone County and Florence, KY.

## 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'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.

## GCWW - Water Treatment at its Best!

Greater Cincinnati Water Works (GCWW) is proud to present the 2010 Safe Drinking Water Report. **The water provided to you during the past year met all state and federal health standards set for drinking water.** We monitor the water from the source through treatment and in the distribution system to ensure high quality drinking water.

ORSANCO's coordinated early warning organic detection system on the Ohio River is the only such system in the United States.



ORSANCO Monitoring Stations Along the Ohio River  
(Ohio River Sanitation Commission — <http://www.orsanco.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.

2010 Report			Miller Water (from the Ohio River)				Bolton Water (from the Great Miami Aquifer)				Typical Source of Contamination (for more details, visit <a href="http://www.epa.gov/safewater/hfacts.html">www.epa.gov/safewater/hfacts.html</a> )
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	0.97	0.84 - 1.09	No	2010	0.98	0.81 - 1.34	No	2010	Additive which promotes strong teeth. May come from erosion of natural deposits.
Nitrate (ppm)	10	10	1.14	0.59 - 1.14	No	2010	0.98	na	No	2010	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits.
TTHMs (ppb) [Trihalomethanes]	80	na	43.0	17.7 - 76.5	No	2010	28.5	16.4 - 41.0	No	2010	Byproduct of drinking water chlorination.
HAA5 (ppb) [Haloacetic Acids]	60	na	9.84	2.66 - 20.6	No	2010	6.21	1.57 - 9.65	No	2010	Byproduct of drinking water chlorination.
Beta/photon emitters (pCi/l)	4 mrem/yr (AL = 50 pCi/l)	0	24	nd - 24	No	2007	6	nd - 6	No	2007	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	0.10	0.04 - 0.10	No	2010	nr	nr	na	na	Soil runoff.
Lead <sup>2+</sup> (ppb)	AL = 15	0	90th percentile 5.1	na	No	2010	90th percentile 5.1	na	No	2010	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.
Copper <sup>2+</sup> (ppm)	AL = 1.3	1.3	90th percentile 0.0338	na	No	2010	90th percentile 0.0338	na	No	2010	
Total Organic Carbon	TT <sup>1</sup>	na	2.38	1.74 - 3.11	No	2010	nr	nr	na	na	Naturally present in the environment.
Total Chlorine <sup>2</sup> (ppm)	MRDLG=4	MRDLG=4	1.01	0.89 - 1.06	No	2010	1.01	0.89 - 1.06	No	2010	Water additive used to control microbes.
Barium (ppm)	2	2	0.0382	na	No	2010	0.0180	na	No	2010	Erosion of natural deposits; Discharge of drilling wastes; Discharge from metal refineries.
Chromium (ppb)	100	100	1.25	na	No	2010	2.76	na	No	2010	Erosion of natural deposits; Discharge from steel and pulp mills.
Selenium (ppb)	50	50	1.81	na	No	2010	2.34	na	No	2010	Erosion of natural deposits; Discharge from petroleum and metal refineries.

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

2010 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)	70	2.27	na	na	2010	1.26	na	na	2009	Byproducts of drinking water disinfection, measured at the point of entry to distribution system.
Bromodichloromethane (ppb)	0	3.15	na	na	2010	3.35	na	na	2009	
Dibromochloromethane (ppb)	60	4.09	na	na	2010	7.68	na	na	2009	
Bromoform (ppb)	0	0.99	na	na	2010	8.43	na	na	2009	
Sulfate (ppm)	na	76	54-115	na	2010	na	na	na	na	Erosion of natural deposits.

**Foot Notes**  
<sup>1</sup> 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. <sup>2</sup> Miller and Bolton were considered as one distribution system for regulatory purposes by Ohio EPA during 2010. Data listed for each system represents the combined distribution system.

**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 TTHMs: Total Trihalomethane HAA5: Haloacetic Acids

### \*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 shall 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.

**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 2010 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.

Boone Florence Water Commission Maximum Allowed (MCL*)				
	Maximum Allowed	Maximum MCLG*	Highest Compliance Level Detected	Range of Detection
Total Trihalomethanes (ppb)	80	na	50.0	24.0-75.0
Haloacetic Acids (ppb)	60	na	11.0	6.0-15.0

\*See definitions.

Boone County Water District Stage 2 IDSE range of data/analysis		
Total Trihalomethanes (ppb)	not required during Stage 2 IDSE sampling	18.8-84.3
Haloacetic Acids (ppb)	not required during Stage 2 IDSE sampling	04.1-22.9
Next sample year 2012		

Boone County Water District Water Quality Data 2010 Chlorine Data	
Highest Annual Average	1.202
Range	0.5 to 1.9

Lead & Copper Data		
	Lead	Copper
90th percentile levels	0.001	0.057
Number of Sites Above AL	0	0
Number of Allowable Sites Above AL	3	2
AL	15 ppb	1 ppm
MCLG	0 ppb	0 ppm

Typical Sources of Contaminant		
	Corrosion of household plumbing systems, erosion of natural deposits; leaching from wood preservations	Corrosion of household plumbing systems, erosion of natural deposit-preservations

\*Data collected 2008 (every three years)  
 Lead and Copper compliances is met when 90% of the samples collected from worst case sites have lead and copper below the action level (AL)

Asbestos Data			
(MCL) Maximum Contaminant Level	Next Sample Year	Sample Year	Sample Result Fibers per liter
7 million fibers per liter	April 2011	April 2006	1 million

Microbiological Contaminants (units)				
	Average Level Detected	Range of Detections Lowest - Highest Max & Min	MCL-MCLG	Violation Yes/No
Total Coliform Bacteria (% positive samples)	0%	0% - .001%	5% - 0%	No
Typical Sources of Contaminant: Naturally present in the environment				
Fecal Coliform & E. Coli (% positive samples)	0%	0% - .000%	0% - 0%	No
Typical Sources of Contaminant: Human and animal fecal waste				