

# 2011 Annual Water Quality Report



**Kentucky  
Northern  
Division**

PWS ID: KY0940430



## Quality Water for Quality Life

Dear Valued Customer:

Kentucky American Water is proud to be your local water service provider, and I am pleased to share with you good news about the quality of your drinking water. Each year, we provide you with our Annual Water Quality Report—and like so many years prior — you'll find that we continue to supply water that meets or surpasses all state and federal water quality regulations.

This doesn't happen by chance. It requires having the right team of experts and technologies in place. Delivering high-quality, reliable water service to your tap around the clock also requires significant investment in our water infrastructure. In fact, each year we conduct a variety of system improvements that total approximately \$20 million. From upgrading our treatment facilities to replacing aging water pipelines, we make these investments prudently and with purpose. And, because we invest our dollars responsibly, we can still provide our water at less than a penny per gallon—an exceptional value for a service that is so essential to our daily lives.

We hope you agree that water service is worth every penny and worth learning more about. Please take the time to review this report. It provides details about the source and quality of your drinking water using the data from water quality testing conducted for your local water system from January through December 2011. For an electronic copy of this report, visit us online at [www.kentuckyamwater.com](http://www.kentuckyamwater.com).

At Kentucky American Water, our customers are our top priority, and we are committed to providing you with the highest quality drinking water and service possible now and in the years to come.

Sincerely,

Cheryl D. Norton  
President, Kentucky American Water

**LESS THAN A PENNY A GALLON**  
That's an exceptional value.

### A Proud Member of the Partnership for Safe Water

In 2007 Kentucky American Water's Northern Division treatment plant in Owenton joined the Partnership for Safe Water program administered by the U.S. Environmental Protection Agency (EPA), American Water Works Association and other water-related organizations. The Partnership is a voluntary commitment to continued improvement designed to help utilities provide safer water to millions of Americans by implementing prevention programs above those required by law. These preventive measures focus on improving treatment plant performance, thereby increasing protection of public health.



**Este informe contiene información muy importante sobre su agua potable.  
Tradúzcalo o hable con alguien que lo entienda bien.**

### A Proud Master Member of the Kentucky EXCEL Program

The Kentucky Department for Environmental Protection administers a voluntary program that is open to anyone who wishes to improve and protect Kentucky's environment beyond regulatory requirements. The Master membership is the highest of the four membership levels, requiring members to demonstrate comprehensive environmental management planning; undergo an independent, third-party assessment of compliance; and commit to complete and report on at least four voluntary projects that will benefit Kentucky's environment. Kentucky American Water is proud to participate in this program at the Master level.



## About Kentucky American Water

Kentucky American Water, a wholly owned subsidiary of American Water (NYSE: AWK), is the largest investor-owned water utility in the state, providing high-quality and reliable water and/or wastewater services to approximately half a million people.

Founded in 1886, American Water is the largest investor-owned U.S. water and wastewater utility company. With headquarters in Voorhees, N.J., the company employs approximately 7,000 dedicated professionals who provide drinking water, wastewater and other related services to approximately 15 million people in approximately 30 states, as well as parts of Canada. More information can be found by visiting [www.amwater.com](http://www.amwater.com).

## Information on the Internet

The U.S. Environmental Protection Agency (EPA), Centers for Disease Control and the Kentucky Division of Water Web sites provide a substantial amount of information relating to water sources, water conservation, and public health. You may visit these sites at the addresses below:

**U.S. Environmental Protection Agency:** <http://water.epa.gov/drink/index.cfm>

**Centers for Disease Control and Prevention:** <http://www.cdc.gov/>

**Kentucky Division of Water:** <http://water.ky.gov/pages/default.aspx>

## Protecting Your Water

The Kentucky Division of Water approved Source Water Assessment and Protection Plans for Kentucky American Water's suppliers in 2003. These plans focus on identifying potential sources of contamination for drinking water supplies and encourage ongoing planning to protect source waters. The following are brief summaries of potential contamination sources for Kentucky American Water's sources of supply.

An analysis of Kentucky American Water's surface water supplies indicates that susceptibility to contamination is generally moderate with potential contamination sources identified as storage tanks, agricultural and lawn care activities, power line right-of-way applications, roadway runoff and septic systems.

Carroll County Water sources are moderately susceptible to contamination from row crops, sewage treatment, permitted operations and road exposure. These cumulatively increase the potential for a release of contaminants within their watershed.

Warsaw Water Works' and Gallatin County Water's groundwater supply is moderately susceptible to contamination. Potential sources of contamination within the wellhead protection area include storage tanks, agricultural land use, highways, wastewater treatment, septic systems and machinery storage.

Georgetown Municipal Water's Royal Spring has been determined to have a moderate susceptibility to potential contamination due to runoff from various sources in an urban environment. Source Water Assessment and Protection Plans for each water system may be viewed by calling the Watershed Management Branch of the Kentucky Division of Water at (502) 564-3410.

Protection of drinking water is everyone's responsibility. You can help protect our water supplies by:

- Eliminating excess use of lawn and garden fertilizers and pesticides; they contain hazardous chemicals that can reach our source water.
- Picking up after your pets.
- Disposing of chemicals properly; take used motor oil to a recycling center.
- Disposing of used medicine properly (visit our Web site at [www.kentuckyamwater.com](http://www.kentuckyamwater.com) for additional information).
- Volunteering in watershed groups in our area.
- Remembering that storm drains dump directly into local water bodies.

Kentucky American Water encourages you to take an active part in protecting your water supply by participating in activities as they occur in your area. For example, in Fayette County the company participates in Reforest the Bluegrass annually, planting trees near water bodies to enhance our source water protection.

## What are the Sources of Contamination?

When it rains, water travels over the surface of the land or through the ground, dissolving naturally occurring minerals (possibly radioactive material) and picking up organic material from animals or humans. The water ends up in rivers, lakes, streams, ponds, reservoirs, springs, and wells, where it may be used as a source of supply for both drinking and bottled water. The following contaminants may be present in source water as a result of this process:

- **Microbial Contaminants**, such as viruses and bacteria from sewage, agricultural livestock operations or wildlife.
- **Inorganic Contaminants**, such as salts and metals that may occur naturally or may result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- **Pesticides and Herbicides**, which come from a variety of sources such as agriculture, urban storm water 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 storm water runoff and septic systems.
- **Radioactive Contaminants**, which occur naturally or result from oil and gas production and mining activities.

The majority of drinking water for our Northern Division customers is produced at our 1.44 million gallon per day treatment facility in Owenton that treats surface water from Severn Creek near its confluence with the Kentucky River pool 2 south of Owen County. The Severn Creek supply is supplemented with surface water from Thomas Lake, in south-central Owen County.

Kentucky American Water customers in the Glencoe area receive water purchased from Gallatin County Water. The primary supply for Gallatin County Water is an underground aquifer that runs beneath Gallatin County. Our customers may receive treated water that Gallatin County Water purchases from the Warsaw Water Works treatment facility located in Warsaw. The Warsaw Water Works source is the same underground aquifer that is utilized by Gallatin County Water.

Customers in the Wheatley area receive water purchased from Carroll County Water District #1, whose source is groundwater from the Ohio River alluvial aquifer that is pumped from two separate well fields in Carroll and Gallatin counties. The Carroll County well field consists of five wells: three located at the water plant, one located on Henry Clay Lane and a well located on Fishing Street. The Gallatin County well field consists of two wells and is located on Highway 42 on the riverside of the Gallatin Steel property. Carroll County Water District #1 can also purchase water that Carrollton Utilities treats from its wells located in downtown Carrollton.

Our customers in the New Columbus area currently receive water purchased from the City of Georgetown. The source for the City of Georgetown is the historic Royal Spring, a groundwater source under the direct influence of surface water that has supplied Georgetown with drinking water since 1775. Water from the spring is pumped downstream to the treatment plant at 214 West Main Street.

## What is *Cryptosporidium*?

*Cryptosporidium* is a microbial pathogen found in surface water throughout the United States. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. People with severely weakened immune systems have a risk of developing life threatening illness. We encourage such individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

The U.S. EPA issued a rule in January 2006 that requires systems with higher *Cryptosporidium* levels in their source water to provide additional treatment. To comply with this rule, Kentucky American Water began monitoring raw water sources for *Cryptosporidium* in March 2007 and completed 24 consecutive months of sampling. We detected the organism in our source water two times in Thomas Lake and one time in Severn Creek during this testing. Based on the results of our *Cryptosporidium* monitoring, no additional treatment will be required by the U.S. EPA regulation.

## Monitoring Requirements and Secondary Standard Not Met for Warsaw Water

Two violations were received in 2011 that affected customers in the Glencoe area of our Northern Division. Even though these violations were not emergencies, as our customers, you have a right to know what happened and what has been done to correct the situations. The first violation listed was an exceedance of the secondary MCL for fluoride. The second was for failing to report fluoride.

*Please note that these violations were issued to a system from whom we purchase water (i.e. Warsaw Water), but we want you to be aware of this information. The "we" listed in the mandatory paragraph below refers to Warsaw Water.*

We routinely monitor for the presence of drinking water contaminants. Testing results for a sample collected on May 24, 2010, show that our system exceeded the standard, or maximum contaminant level (MCL), for fluoride. The test results of the fluoride sample taken on that date was 6.23 mg/L. The standard for fluoride is that the average of samples taken over the last year may not exceed 4.0 mg/L.

Children under the age of nine should use an alternative source of water that is low in fluoride. In addition, you may want to consult your dentist about whether to avoid dental products containing fluoride. Adults and children over age nine should consult their dentist or doctor and show him/her this notice to determine if an alternate source of water low in fluoride should be used.

This is not an emergency. If it had been, you would have been notified within 24 hours. Fluoride in small amounts helps prevent tooth decay. *However, some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or greater may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums.* Although it takes many years of exposure to fluoride for bone disease to develop, mottling can occur after a relatively short period of exposure.

Our water system violated drinking water requirements. Even though this is not an emergency, as our customers, you have a right to know what happened and what we are doing to correct the situation.

*We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During 2010 we did not complete all monitoring or testing for fluoride and therefore cannot be sure of the quality of your drinking water during that time.*

There is nothing you need to do at this time.

### What happened and what has been done?

A recent audit performed by the Kentucky Division of Water of a lab that was sub-contracted by Warsaw's contract lab revealed an analysis result of one fluoride sample collected almost two years ago on May 24, 2010 that exceeded the MCL. In addition, the analysis result was never reported to the water system or the Kentucky Division of Water and therefore a monitoring violation occurred.

Records indicate that a replacement sample was submitted. Analysis results of the replacement sample and all samples submitted to the lab prior to and afterward were within acceptable levels. All routine daily fluoride tests conducted on-site by the water system personnel during that time period were also within acceptable levels. An investigation of the situation has not revealed a reason for the high fluoride reading. However, since the original analysis was not invalidated using proper procedures the results are required to be accepted as a legitimate analysis. Warsaw Water is also responsible for making sure that all required tests are performed and that all analysis results have been submitted to the Division of Water as required. Warsaw discussed this situation with both labs and established procedures to prevent similar situations from occurring in the future.

*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.*

## Special Information on Nitrate

Nitrate in drinking water at levels above ten (10) ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask for advice from your health care provider.

## You Can Be Involved in Matters That Affect Your Water

Kentucky American Water welcomes your comments and questions regarding water quality issues. You can contact us with questions about your water, your water bill, service issues, or to obtain additional copies of this report by calling our Customer Service Center at (800) 678-6301.

Electronic copies of this document may be obtained by visiting our Web site at [www.kentuckiamwater.com](http://www.kentuckiamwater.com).

## Protecting Our Water Supply – Backflow Prevention

Kentucky American Water has a backflow prevention program that ensures proper installation and maintenance of thousands of backflow prevention devices throughout our system. These devices ensure hazards originating on customers' properties and from temporary connections do not impair or alter the quality of water in our distribution system. For more information about Kentucky American Water's backflow prevention program, please visit our Web site at [www.kentuckiamwater.com](http://www.kentuckiamwater.com), or contact our Senior Cross Connection Control Specialist Kenny Roney, at [kenny.roney@amwater.com](mailto:kenny.roney@amwater.com) or (859) 268-6310.

## Substances Expected to be in Drinking Water

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 at (800-426-4791).

To ensure tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain substances in water provided by public water systems. The U.S. Food and Drug Administration establishes limits for contaminants in bottled water that must provide the same protection for public health.

## Chloramines

Chloramines are a state- and federally-approved alternative to free chlorine, which provide good distribution disinfection while minimizing disinfection byproduct formation. Georgetown uses chloramines for distribution disinfection. Chloramines are the same as chlorine for all typical water uses; however, chloramines must be removed from water used in kidney dialysis and fish keeping. Please contact your physician or dialysis specialist for questions pertaining to kidney dialysis waters and your pet store or veterinarian for questions regarding water used for fish and other aquatic life. For more information about chloramines, please contact our Customer Service Center at (800) 678-6301.

## A Proud Winner of the Area Wide Optimization Award

Kentucky American Water is proud to report that our water treatment plant in Owenton has, for the second consecutive year, received the U.S. Environmental Protection Agency's (EPA) Area-Wide Optimization Program (AWOP) award for 2011 from the Kentucky Energy and Environment Cabinet (EEC). This distinction recognizes facilities that reduce the amount of turbidity (or cloudiness) in the water to levels well below what is required by state and federal regulations. Because bacteria and viruses can attach themselves to dirt, the primary source of turbidity in water, the removal of particles is a critical component of protecting consumers from waterborne diseases.

## Commonly Asked Questions

**Why do I have cloudy or milky water?** Occasionally your water may look cloudy or milky. Cloudy or milky-looking water is usually the result of lots of tiny air bubbles suspended in the water. The bubbles are so small that they are almost invisible, but together they look like someone poured milk in your water. Our water has dissolved air in it all of the time, but it has more during the colder months. When the colder water warms in your hot water heater or in the pipes of your home, it can no longer hold all of the dissolved air, so air bubbles appear. There is nothing that Kentucky American Water can do to remove these air bubbles from the water, but be assured that these bubbles will clear on their own as the water warms up. If you allow a glass of water to stand for a few moments, the air bubbles will rise to the surface. This phenomenon is called entrained air, does not affect the quality of your water and is not harmful to consume. If the water does not clear from the bottom up, please contact our Customer Service Center at (800) 678-6301.

**Why do I have brown or yellow water?** The internal plumbing of your house may be the culprit if discolored water only appears for a minute or two after your tap is turned on. Since iron is an essential nutrient, this condition poses no health hazard. If the discoloration bothers you, however, flush the tap until the water becomes clear, saving the flushed water for iron-loving plants. If the discoloration is detected only in your hot water supply, it is likely an indication of an issue with your hot water heater. You should consult your owner's manual for instructions and warnings regarding flushing your hot water heater or contact a licensed plumber.

Sediments in water mains sometimes get stirred up when fire hydrants are used and when the flow of water in mains is changed. These sediments may cause your water to turn brown or yellow. Wait 30 to 40 minutes after you notice the discolored water, and try turning on the cold water in your bathtub for a minute or two. You'll probably notice that it clears right away, since sediments settle quickly back to the bottom of water mains. Discolored water due to sediments poses no known health threat, but for aesthetic reasons you should avoid doing laundry until the water color clears. If the water does not clear after a few minutes, please contact our Customer Service Center at (800) 678-6301.

**Is there lead in my 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. Kentucky American Water 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>. Kentucky American Water remains in full compliance with all of the requirements pertinent to lead and copper in drinking water.

**What is the difference between "hard" and "soft" water?** Hardness is a measure of the concentration of two minerals (calcium and magnesium) naturally present in water. Excessive hardness can cause scale (white spots) to be deposited in boilers, pipelines, faucet aerators and shower heads. Hard water also requires the use of large amounts of laundry soap to achieve the desired results. The use of water softeners adds sodium to the water, which acts as a softening agent. Soft water is either water that is low in calcium or magnesium, or water that has been treated in a softener. Hardness levels leaving our treatment plant in 2011 ranged from 80 (moderately hard) to 242 ppm (very hard) or 4.7 to 14.2 grains per gallon. The average leaving our plants is 170 ppm (hard) or 9.9 grains per gallon. The average leaving our plants is 212 ppm (very hard) or 12 grains per gallon.

**How much sodium is in my water?** The sodium level is approximately 18 ppm.

**What is the pH (acidity) range of my water?** Water leaving our water treatment plant averaged 7.5 pH units. A pH of 7.0 is considered neutral - neither acidic nor basic.

**What is the alkalinity of my water?** Alkalinity is the capacity of water to neutralize acids. Water leaving our water treatment plant in 2011 averaged 108 ppm.

**Is there fluoride in my water?** Yes. Kentucky American Water is required by law to add fluoride to a level of near 0.9 ppm to assist in the prevention of dental cavities. The average fluoride level in our distribution system is 1 ppm.

## Special Health Information

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 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).

## How to Read This Table

Start by finding a **Substance**, and then read across to find the information about that substance. The **Year Sampled** is 2011 or prior years. **MCL** shows the highest level of substance (contaminant) allowed. **MCLG** is the goal level for that substance (this may be lower than what is allowed). **Highest Value** (Results) represents the measured amount (less is generally better). **Range** tells the highest and lowest amounts measured. A **Yes** under **Compliance Achieved** means the amount of the substance met government requirements. **Typical Source** tells where the substance usually originates.

### Definitions of Terms Used in This Report

- **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 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 contamination.
- **mrem/year (millirems per year):** A measure of radiation absorbed by the body.
- **NA:** Not applicable
- **ND:** Not detected
- **NTU (Nephelometric Turbidity Units):** A measurement of the clarity, or turbidity, of the water.
- **pCi/L (picocuries per liter):** Measure of radioactivity in water.
- **pH:** A measurement of acidity, 7.0 being neutral
- **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.
- **ppt (parts per trillion):** One part substance per trillion parts water, or picograms per liter.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.

## Water Quality Testing

Kentucky American Water conducts extensive monitoring to ensure that your water meets all water quality standards. The results of our monitoring are reported in the following tables. While most monitoring was conducted in 2011, certain substances are monitored less than once per year because the levels do not change frequently. We are pleased to report that during the past year, the water delivered to your home or business complied with, or exceeded, all state and federal drinking water standards. Although all of the substances listed below are under the Maximum Contaminant Level (MCL) set by the U.S. Environmental Protection Agency, we believe it is important that you know exactly what was detected and how much of the substance was present in the water. For help with interpreting this table, see "How to Read This Table." Monitoring also was performed during 2011 for the unregulated contaminant hexavalent chromium. Unregulated contaminants are those that don't have a drinking water standard set by EPA. The purpose of monitoring for this contaminant is to help EPA decide whether the contaminants should have a standard. The results of the hexavalent chromium monitoring are included in the Water Quality Results table.

# Water Quality Results

Regulated Substances (Measured on the Water Leaving the Treatment Facility)																	
Substance (units)	Year Sampled	MCL	MCLG	Owenton Area Customers		Glencoe Area Customers				New Columbus Area Customers <sup>9</sup>				Wheatley Area Customers		Compliance Achieved	Typical Source
				Kentucky American Water-Northern Division		Warsaw Water Works		Gallatin County Water		Kentucky American Water-Northern Division		Georgetown Municipal Water and Sewer System		Carroll County Water District			
				Highest Value	Range Low-High	Highest Value	Range Low-High	Highest Value	Range Low-High	Highest Value	Range Low-High	Highest Value	Range Low-High	Highest Value	Range Low-High		
Alpha emitters (pCi/L) <sup>1</sup>	2011	15	0	ND	NA	2.62	1.10 - 2.62	0.8	0.0 - 0.8	ND	NA	1.5	0.4 - 2.9	3.1	3.1 - 3.1	Yes	Erosion of natural deposits
Barium (ppm)	2011	2	2	0.007	NA	ND	ND	0.037	0.033 - 0.037	0.007	NA	0.025	0.025	0.048	0.048	Yes	Discharge from petroleum refineries; Fire retardants; Ceramics; Electronics; Solder
Beta or photon emitters (pCi/L) <sup>1</sup>	2011	50	0	NA	NA	2.13	1.26 - 2.13	NA	NA	NA	NA	7.9	7.9 - 7.9	NA	NA	Yes	Decay of natural and man-made deposits
Combined Radium (pCi/L) <sup>2</sup>	2011	2	2	ND	NA	1.512	1.04 - 1.512	ND	ND	ND	NA	0.13	0 - 0.4	0.54	0.54 - 0.54	Yes	Erosion of natural deposits
Ethylene dibromide (EDB) (ppt) <sup>3</sup>	2011	50	0	ND	ND	23	23	ND	ND	ND	ND	ND	ND	NA	NA	Yes	Discharge from petroleum refineries
Fluoride (ppm)	2011	4	4	1.1	0.8 - 1.1	1.2	1.04 - 1.15	1.39	0.75 - 1.39	1.1	0.8 - 1.1	1.19	0.9 - 1.19	1.34	0.12 - 1.34	Yes	Water additive that promotes strong teeth
Nitrate (ppm)	2011	10	10	0.3	NA	4.4	4.2 - 4.4	7.7	3.57 - 7.7	0.3	NA	8	2.4 - 7.6	7.85	5.28 - 7.85	Yes	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural deposits
Nitrite (ppm)	2011	1	1	ND	NA	0.16	0.14 - 0.16	ND	NA	ND	NA	0.022	0.022 - 0.022	ND	ND	Yes	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural deposits
Total Organic Carbon (ppm) <sup>4</sup>	2011	TT	NA	2.37	1.93 - 4.39	NA	NA	NA	NA	2.37	1.93 - 4.39	1	1.0 - 1.2	NA	NA	Yes	Naturally present in the environment
Turbidity (NTU) <sup>5</sup>	2011	TT	NA	0.14	100% Lowest Monthly	NA	NA	NA	NA	0.14	100% Lowest Monthly	0.299	NA	NA	NA	Yes	Soil runoff
Uranium (ppb) <sup>6</sup>	2011	20	3	ND	NA	0.34	0.196 - 0.34	NA	NA	ND	NA	1.25	1.2 - 1.3	0.27	0.27 - 0.27	Yes	Naturally present in the environment

Regulated Substances (Measured in the Distribution System)							
Substance (units)	Year Sampled	MCL	MCLG	Highest RAA	Range Low-High	Compliance Achieved	Typical Source
Total Trihalomethanes (ppb) <sup>7</sup>	2011	80	0	76	33 - 97	Yes	By-product of drinking water disinfection
Haloacetic Acids (ppb) <sup>7</sup>	2011	60	0	49	13 - 73	Yes	By-product of drinking water disinfection
Chlorine (ppm) <sup>8</sup>	2011	MRDL = 4	MRDLG = 4	1.1	0.4 - 2.2	Yes	Water additive used to control microbes
Chloramine (ppm) <sup>9</sup>	2011	MRDL = 4	MRDLG = 4	1.7	1.0 - 2.7	Yes	Water additive used to control microbes

Unregulated Substances (Measured in the Distribution System)							
Substance (units)	Year Sampled	MCL	MCLG	Average	Range Low-High	Compliance Achieved	Typical Source
Hexavalent Chromium (ppb) <sup>10</sup>	2011	NA	NA	0.3	0.21 - 0.33	Yes	Hexavalent chromium can be generated from natural deposits of chromium in soils as well as produced by industrial processes such as steel manufacturing and pulp mills

Regulated Substances (Measured at the Customer's Tap)								
Substance (units)	Year Sampled	Action Level	MCLG	90th Percentile	Number of Samples	Number of Samples Above Action Level	Compliance Achieved	Typical Source
Lead (ppb) <sup>11</sup>	2010	15	0	3	24	0	Yes	Corrosion of household plumbing systems
Copper (ppm) <sup>11</sup>	2010	1.3	1.3	0.28	24	0	Yes	Corrosion of household plumbing systems

Bacterial Results (Measured in the Distribution System)							
Substance (units)	Year Sampled	MCL	MCLG	Highest Number of Positive Samples Detected	Compliance Achieved	Typical Source	
Total Coliform	2011	1 Positive Monthly Sample		NA	1	Yes	Naturally present in the environment

<sup>1</sup> Alpha and Beta or Photon Emitters: The MCL for beta or photon emitters is 4 mrem/year (millirems per year is a measure of radiation absorbed by the body). The results in the table are reported in picocuries/Liter (pCi/L). EPA considers 50 pCi/L the level of concern for beta emitters. Kentucky American Water sampled for alpha and beta emitters in 2008. Warsaw Water Works sampled for alpha and beta emitters in 2010. Gallatin County Water sampled for alpha emitters in 2006. Georgetown Municipal Water and Sewer System sampled for alpha emitters in 2007 and beta photon emitters in 2010. Carroll County Water District sampled for alpha emitters in 2009.

<sup>2</sup> Combined Radium: Radium-226 and Radium-228 concentrations added together. Kentucky American Water-Northern Division sampled for Combined Radium in 2008. Carroll County Water District sampled for Combined Radium in 2010. Warsaw Water Works sampled for Combined Radium in 2010. Georgetown Municipal Water and Sewer System sampled for Combined Radium in 2007.

<sup>3</sup> Ethylene dibromide: This compound is a Synthetic Organic Chemical (SOC's). Georgetown Water sampled in 2009. Kentucky American Water-Northern Division, Gallatin County Water, Carroll County Water and Warsaw Water sampled in 2011.

<sup>4</sup> Total Organic Carbon: Although the concentration is listed as ppm, the values shown are ratios that are used to determine compliance. Compliance with the TOC Treatment Technique (TT) requirement is based on the lowest running annual average (RAA) of the monthly ratios of the % TOC treatment removal achieved compared to the required removal. A minimum annual average ratio of 1.00 is required.

<sup>5</sup> Turbidity: Turbidity is the clarity of water. It is measured as an indicator of water quality and the effectiveness of the filtration system. Compliance with the turbidity Treatment Technique (TT) is achieved when 95% of four-hour filtered water readings are 0.3 NTU or lower and no readings are greater than 1 NTU. Groundwater systems are not required to monitor for turbidity or to meet the TT for turbidity removal.

<sup>6</sup> Uranium: Kentucky American Water and Carroll County Water sampled for Uranium in 2010. Warsaw Water sampled in 2010. Georgetown Municipal Water and Sewer System sampled for Uranium in 2010.

<sup>7</sup> Total Trihalomethanes (THMs) and Haloacetic Acids (HAA5s): Compliance is based on a RAA that is calculated quarterly. The highest quarterly RAA is the measured value in the table. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

<sup>8</sup> Chlorine: Water served to Owenton, Glencoe, and Wheatley area customers is disinfected with chlorine.

<sup>9</sup> Chloramine: Customers in our New Columbus area received water from our Northern Division water plant for part of the year and purchased water from Georgetown Municipal Water and Sewer System for part of the year. Water provided by our Northern Division water plant is disinfected with chlorine. Water from Georgetown is disinfected with chloramines (a mixture of chlorine and ammonia).

<sup>10</sup> Hexavalent Chromium: Chromium-6 is not currently regulated as an individual substance. Kentucky American Water voluntarily performed this monitoring based on recommendations from the U.S. EPA. For more information on chromium-6, please visit our website. Results are for 2011 quarterly monitoring.

<sup>11</sup> Lead and Copper: Compliance is achieved when the results for at least 90% of samples collected from water standing in contact with plumbing for at least 6 hours are below the Action level.