

City of Cynthiana  
859-234-7159  
PWS ID # KY0490096

### **What's the Quality of My Water?**

The City of Cynthiana is pleased to share this water quality report with you. It describes to you, the customer, the quality of your drinking water. This report covers January 1 through December 31, 2009. The City of Cynthiana strives to comply with the strict regulations of both the State of Kentucky and the U.S. Environmental Protection Agency (EPA), which requires all water suppliers to prepare reports like this every year.

The City of Cynthiana has been providing clean water to your community since 1965, helping to keep you and your family healthy. It is the goal of the Cynthiana Water Treatment Plant Supervisor and Staff to produce quality water that is colorless, free of objectionable taste and odor, and economical to treat. We take this mission very seriously. Our continuing goal is to provide you with a safe and dependable supply of drinking water.

Cynthiana is by far the largest source of water supply within Harrison County. The City supplies the needs of its own customers and also sells potable water to the Harrison County Water Association. The City of Cynthiana treats and distributes water to 2700 residential, commercial, and industrial customers. In 2009 our water department treated 685,882,000 gallons of water. We have two sources of surface water. The first is the South Fork of the Licking River, which begins in Bourbon County with the confluence of Hinkston and Stoner Creeks at Ruddles Mill. The second source is the Main Licking River at the Devils Backbone. The Main Licking River is fed by Cave Run Lake in Rowan County. Cynthiana treats your water using disinfection and filtration to remove or reduce harmful contaminants that may come from source water. All of our operators are extensively trained, tested, and certified by the state of Kentucky. The Cynthiana Water Treatment Plant is a class IVA plant with a design capacity of 6.0 mgd. We are staffed by five class IVA operators and one class IIIA operator.

We have completed a Source Water Assessment Plan (SWAP); the following is a summary of our system's susceptibility to contamination. An analysis of the susceptibility of the Cynthiana water supply to contamination indicates that this susceptibility is generally moderate. There are, however, a few areas of high concern. Several bridges, a railroad, areas of row crops, sewer lines, several firms that treat, store or dispose of hazardous waste, a historical landfill, an airport, a KPDES permitted discharger, several waste generators and/or transporters and recreational grasses are present in the vicinity of the intakes.. There are numerous permitted operations and activities and other potential contaminant sources within the watersheds. These potential contaminant sources include underground storage tanks, forest areas, major roads and firms that handle hazardous wastes. The complete Source Water Assessment (SWAP) can be viewed at either the Water Treatment Plant, at 201 Waterworks/Abdallah Park Road, or the City Clerk's Office, at 104 E. Pleasant Street, Suite One.

If you have any questions about this report or concerning your water utility, please contact Harry Johnson, Superintendent or Todd Blanton, by calling (859) 234-7159, writing to this address: PO Box 67, Cynthiana, KY 41031 or by e-mail: [cynwaterplant@bellsouth.net](mailto:cynwaterplant@bellsouth.net). We want our valued

customers to be informed about their water utility. You can attend regular board meetings on the second and fourth Tuesday of each month, at 5:30 PM, in the Commissioner's Room, City Hall, at 104 E. Pleasant Street.

### **The U.S. Environmental Protection Agency (EPA) wants you to know:**

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must 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 can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

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 storm water 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 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 can also come from gas stations, urban storm water runoff, and septic systems.

Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

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. The City of Cynthiana 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>.

## City of Cynthiana 2009 Monitoring Results for Contaminants in Drinking Water

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 (1-800-426-4791).

Contaminant	Unit	MCLG Health Goal	MCL EPA's Limits	Highest Level Detected	Range Detected	Violation (Yes / No)	Year <sup>2</sup> Sampled	Potential Source of Contamination
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### Microbiological Contaminants

Total Organic Carbon	TT	NA	TT	0.97 LRAA	0.42 - 2.04	YES <sup>3</sup>	2009	Naturally present in the environment.
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Monthly ratio is the % TOC removal achieved to the % TOC removal required. Annual average of the monthly ratios must be 1.00 or greater for compliance. TOC is measured as a ppm but reported as a ratio.

Turbidity <sup>1</sup>	NTU	NA	TT / never more than 1 NTU and less than 0.3 NTU in 95% of samples	0.23	100% of samples met limits	NO	2009	Soil Runoff.
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### Radioactive Contaminants

Combined radium	pCi/L	0	5	0.19	NA	NO	2008	Erosion of natural deposits.
Uranium	ug/L	0	30	0.04	NA	NO	2008	Erosion of natural deposits.

### Inorganic Contaminants

Copper	ppm	1.3	1.3 = AL	0.116 (90th percentile)	ND - 0.549	NO	2007	Corrosion of household plumbing systems. Erosion of natural deposits. Leaching from wood preservatives.
				All 20 sites below AL				
Fluoride	ppm	4	4	0.96	0.7 - 1.2	NO	2009	Erosion of natural deposits. Water additive to promote strong teeth. Discharge from fertilizer and aluminum factories.
Lead	ppb	0	15 = AL	5.0 (90th percentile)	ND - 7.0	NO	2007	Corrosion of household plumbing systems. Erosion of natural deposits.
				All 20 sites below AL				
Nitrate	ppm	10	10	0.81	0.33 - 0.81	NO	2009	Runoff from fertilizer use. Leaching from septic tanks, sewage. Erosion of natural deposits.

### Volatile Organic Contaminants and Disinfection Byproducts

Chlorine	ppm	MRDLG = 4	MRDL = 4	1.04 HARA	0.22 - 1.98	NO	2009	Water additive used to control microbes.
Haloacetic Acids (HAA5)	ppb	NA	60	36.0 HARA	20 - 67	NO	2009	Byproduct of drinking water chlorination.
Total Trihalomethanes (TTHMs)	ppb	0	80	54 HARA	30 - 116	NO	2009	Byproduct of drinking water chlorination.
Haloacetic Acids (HAA5) IDSE <sup>4</sup>	ppb	NA	60	NA	19 - 83.0	NO	2008 - 2009	Byproduct of drinking water chlorination.
Total Trihalomethanes (TTHMs) IDSE <sup>4</sup>	ppb	0	80	NA	36 - 107.7	NO	2008 - 2009	Byproduct of drinking water chlorination.

<b>Secondary, Physical and Non-Regulated Substances:</b> Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.			
All monitoring was completed during the 2009 monitoring year, unless otherwise noted <sup>2</sup> .			
Substance	Unit	Level Detected	Range
Bromodichloromethane (2004)	ppb	5.77 average	3.0 - 11.0
Chloride	ppm	20.3	NA
Chlorodibromomethane (2004)	ppb	0.39 average	ND - 1.4
Chloroform (2004)	ppb	38.65 average	21 - 81
Fluoride	ppm	0.94	NA
pH	su	7.5	NA
Sodium	ppm	8.44	5 - 8.44
Sulfate	ppm	25.2	NA
Total Dissolved Solids	ppm	223	NA
Monochloroacetic Acid (2004)	ppb	0.26 average	ND - 2.1
Dichloroacetic Acid (2004)	ppb	16.75 average	11 - 27
Trichloroacetic Acid (2004)	ppb	25.65 average	17 - 40
Monobromoacetic Acid (2004)	ppb	1.87 average	ND - 8.0

**Notes:**

<sup>1</sup>Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

<sup>2</sup>The state allows 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.

<sup>3</sup>Testing results we recently reviewed show that our system did not meet the required removal ratio for Total Organic Carbon (TOC). Even though TOC is not a contaminant, and therefore does not have a maximum contaminant level (MCL), a treatment technique is used to maintain acceptable levels. Each month the percent of TOC removed is compared to the percent of TOC required to be removed and a ratio is determined. These monthly ratios are used to calculate an annual average. The annual average of monthly removal ratios of TOC is required to be 1.00 or greater. The TOC removal ratio for our system was calculated to be: 0.95.

Total organic carbon (TOC) has no health effects. However, TOC provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

<sup>4</sup>Under the Stage 2 Disinfectants/Disinfection By-products Rule (D/DBPR), our water public water system was required by the USEPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE), and is intended to identify

locations in our distribution system with elevated disinfection byproduct concentrations. The locations selected for the IDSE may be used for compliance monitoring under Stage 2 DBPR. Disinfection by-products are the result of providing continuous disinfection of your drinking water and from when disinfectants combine with organic matter naturally-occurring in the source water. Disinfection by-products are grouped into two categories, Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5). USEPA sets standards for controlling the levels of disinfectants and disinfectants by-products in drinking water, including both TTHMs and HAA5s.

### **Monitoring Violation:**

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 2009 the City did not complete all monitoring or testing for VOC's<sub>1</sub> and therefore cannot be sure of the quality of our drinking water during that time. We are required to take one sample per year and did not take this sample; it was taken in March 2010. Please see insert for more information on this violation.

Cynthiana's water is regularly tested for organisms that could be harmful to people – including Cryptosporidium (Crypto), which is a microscopic organism that, when ingested, can result in diarrhea, fever and other gastrointestinal symptoms. Crypto comes from animal waste in the watershed and may be found in our source water. While it is sometimes found in rivers and streams, Cryptosporidium has not been found in our finished water.

### **Definitions**

**Maximum Contaminant Level (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.

**Maximum Contaminant Level Goal (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 Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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

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

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

**90th Percentile:** 90% of samples are equal to or less than the number in the chart.

**NTU (Nephelometric Turbidity Units):** A measure of clarity.

**NA:** Not applicable.

**ND:** Not detectable at testing limits.

**PPB (parts per billion):** micrograms per liter (ug/l).

**PPM (parts per million):** milligrams per liter (mg/l).

**HARA:** Highest Annual Rolling Average.

**LRAA:** Lowest Running Annual Average.

**CDC:** Centers for Disease Control.

**EPA:** Environmental Protection Agency

**pCi/L (picocuries per liter):** a measure of radioactivity.

**ug/L:** Microgram per liter.

**IDSE:** Initial Distribution System Evaluation.