



# Nicholasville Water Department Water Quality Report for 2016

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Nicholasville, KY 40356

KY0570315

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**Water - Essential for Life**

Meeting Dates and Time: Every Other Monday 5:00 PM

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This report is designed to inform the public about the quality of water and services provided on a daily basis. Our commitment is to provide our customers with a safe, clean, and reliable supply of drinking water. We want to assure that we will continue to monitor, improve, and protect the water system and deliver a high quality product. Water is the most indispensable product in every home and we ask everyone to be conservative and help us in our efforts to protect the water source and the water system.

We are pleased to present this Annual Water Quality Report. The main source of water for Nicholasville customers is surface water from the Kentucky River (Pool # 8 ). This report is designed to inform the public about the quality of the water and services provided on a daily basis. Our commitment is to provide our customers with a safe, clean, and reliable supply of drinking water. Please report any activity that might jeopardize the water supply. The following is a summary of the systems susceptibility to contamination, which is part of the complete Source Water Assessment Plan ( SWAP ), and is available for inspection at the Water Treatment Plant. An analysis of the susceptibility of the Nicholasville Utilities water supply to contamination indicates that the susceptibility is generally low.

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 (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 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, (sewage plants, septic systems, livestock operations, or wildlife). Inorganic contaminants, such as salts and metals, (naturally occurring or from stormwater runoff, wastewater discharges, oil and gas production, mining, or farming). Pesticides and herbicides, (stormwater runoff, agriculture or residential uses). Organic chemical contaminants, including synthetic and volatile organic chemicals, (by-products of industrial processes and petroleum production, or from gas stations, stormwater runoff, or septic systems). Radioactive contaminants, (naturally occurring or from oil and gas production or mining activities).

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. FDA regulations establish limits for contaminants in bottled water to provide the same protection for public health.

*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).*

### Some or all of these definitions may be found in this report:

### Information About Lead:

**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 (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.

**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.

**Below Detection Levels (BDL)** - laboratory analysis indicates that the contaminant is not present.

**Not Applicable (N/A)** - does not apply.

**Parts per million (ppm)** - or milligrams per liter, (mg/L). One part per million corresponds to one minute in two years or a single penny in \$10,000.

**Parts per billion (ppb)** - or micrograms per liter, (µg/L). One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

**Parts per trillion (ppt)** - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

**Parts per quadrillion (ppq)** - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.

**Picocuries per liter (pCi/L)** - a measure of the radioactivity in water.

**Millirems per year (mrem/yr)** - measure of radiation absorbed by the body.

**Million Fibers per Liter (MFL)** - a measure of the presence of asbestos fibers that are longer than 10 micrometers.

**Nephelometric Turbidity Unit (NTU)** - a measure of the clarity of water. Turbidity has no health effects. However, turbidity can provide a medium for microbial growth. Turbidity is monitored because it is a good indicator of the effectiveness of the filtration system.

**Variations & Exemptions (V&E)** - State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

**Action Level (AL)** - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system shall follow.

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

**Level 1 Assessment** - A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

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. Your local public water system 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>.

The data presented in this report are from the most recent testing done in accordance with administrative regulations in 401 KAR Chapter 8. As authorized and approved by EPA, the State has reduced monitoring requirements for certain contaminants to less often than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data in this table, though representative, may be more than one year old. Unless otherwise noted, the report level is the highest level detected.

	Allowable Levels	Highest Single Measurement	Lowest Monthly %	Violation	Likely Source
Turbidity (NTU) TT * Representative samples of filtered water	No more than 1 NTU* Less than 0.3 NTU in 95% of monthly samples	0.1	100	No	Soil runoff

#### Microbiological Contaminants

Contaminant [code] (units)	MCL	MCLG	Report Level	Date of Sample	Major Sources of Drinking Water	Health Effects Language
Total Coliform Bacteria # or % positive samples	TT	N/A	8.33%	Jul-16	Naturally present in the environment.	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments. During the past year we were required to conduct ONE Level 1 assessment. ONE Level 1 assessment were completed. In addition, we were required to take ONE corrective action and we completed ONE of these actions.

#### Regulated Contaminant Test Results

Contaminant [code] (units)	MCL	MCLG	Report Level	Range of Detection	Date of Sample	Violation	Likely Source of Contamination
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#### Inorganic Contaminants

Barium [1010] (ppm)	2	2	0.020	0.02 to 0.02	Mar-16	No	Drilling wastes; metal refineries; erosion of natural deposits
Copper [1022] (ppm) sites exceeding action level = 0	AL = 1.3	1.3	0.060 (90 <sup>th</sup> percentile)	0 to 0.16	Sep-16	No	Corrosion of household plumbing systems
Cyanide [1024] (ppb)	200	200	10	10 to 10	Mar-16	No	Discharge from steel/metal factories; plastic and fertilizer factories
Fluoride [1025] (ppm)	4	4	0.70	0.7 to 0.7	Mar-16	No	Water additive which promotes strong teeth
Lead [1030] (ppb) sites exceeding action level = 0	AL = 15	0	0 (90 <sup>th</sup> percentile)	0 to 2	Sep-16	No	Corrosion of household plumbing systems
Nitrate [1040] (ppm)	10	10	0.60	0.3 to 0.6	Mar-16	No	Fertilizer runoff; leaching from septic tanks, sewage; erosion of natural deposits

#### Disinfectants/Disinfection Byproducts and Precursors

Total Organic Carbon (ppm) (measured as ppm, but reported as a ratio)	TT*	N/A	1.47 (lowest average)	1.08 to 2.18 (monthly ratios)	N/A	No	Naturally present in environment.
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\*Monthly ratio is the % TOC removal achieved to the % TOC removal required. Annual average must be 1.00 or greater for compliance.

Chlorine (ppm)	MRDL = 4	MRDLG = 4	1.11 (highest average)	0.22 to 2.2	N/A	No	Water additive used to control microbes.
HAA (ppb) [Haloacetic acids] (Individual Sites)	60	N/A	45 (high site average)	12 to 63 (range of individual sites)	N/A	No	Byproduct of drinking water disinfection
TTHM (ppb) [total trihalomethanes] (Individual Sites)	80	N/A	58.375 (high site average)	15 to 98 (range of individual sites)	N/A	No	Byproduct of drinking water disinfection.

#### Other Contaminants

Cryptosporidium [oocysts/L]	0	TT (99% removal)	2 (positive samples)	9 (no. of samples)	2016	See note below	Human and animal fecal waste
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Cryptosporidium. We are required to monitor the source of your drinking water for Cryptosporidium in order to determine whether treatment at the water treatment plant is sufficient to adequately remove Cryptosporidium from your drinking water.

#### 2016 Violations:

Our water system violated drinking water standards over the past year. Even though these were not emergencies, as our customers, you have a right to know what happened and what we did to correct these situations. 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 August 2016 we did not complete all monitoring for cryptosporidium and therefore cannot be sure of the quality of our drinking water during that time. There is nothing you need to do at this time. This was a reporting error. A LT 2 Source Water Monitoring Form was not submitted by the required deadline. A LT 2 Source Water Monitoring Form was subsequently sent and was approved. Measures are now in place to ensure timely delivery of similar material. For more information, please contact James McDaniel at 859-885-6974 or by mail at Nicholasville WTP, 595 Water Works Rd. Nicholasville, KY 40356. 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.

# 2016 Annual Water Quality Report

Kentucky Central Division  
Fayette and Surrounding Counties  
PWS ID: KY0340250



Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

## A Message from the Kentucky American Water President

To Our 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 that provides information about where your water comes from, the results of water testing, and information about what was found during that testing.

Quite a lot goes into bringing that water to your home. The miles of pipeline hidden below the ground. The facilities that draw water from the source. The plant where it's treated and tested. Our treatment plant operators, water quality experts, engineers, and maintenance crews working around the clock to make sure that water is always there when you need it. Delivering high-quality, reliable water service to your tap around the clock also requires significant investment in our water infrastructure to upgrade aging facilities. In fact, we invest approximately \$20 million in capital improvements each year. We are proud that we continue to supply water for **less than a penny per gallon—an exceptional value.**

We do this because we believe we're delivering more than just water service. We deliver a key resource for public health, fire protection, economic development and overall quality of life. Our job is to ensure that quality water keeps flowing not only today, but well into the future. It's part of our commitment to you and the communities we serve.

We hope you agree that it's 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 2016.

We appreciate the opportunity to serve you.

Sincerely,

Nick O. Rowe  
President, Kentucky American Water



Quality, care and value delivered in every drop.

## About Kentucky American Water

Kentucky American Water, a 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.

With a history dating back to 1886, American Water is the largest and most geographically diverse U.S. publicly-traded water and wastewater utility company. The company employs more than 6,700 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to an estimated 15 million people in 47 states and Ontario, Canada. More information can be found by visiting [www.amwater.com](http://www.amwater.com).

## Source Water Information

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 become a source of supply for both drinking and bottled water. The following contaminants may be present in source water because 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 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 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 Kentucky River (as it runs south of Lexington and through Owen County) and Jacobson Reservoir (located in Fayette County) are surface water sources that supply the Central Kentucky area.

## Protecting Your Water

The Kentucky Division of Water approved a Source Water Assessment and Protection Plan for Kentucky American Water in 2003. The plan focuses on potential sources of contamination for the water supplies used by Kentucky American Water.

The Kentucky River is most vulnerable to contamination from agricultural runoff, which may include pesticides, nutrients and silt from croplands, and substances resulting from the presence of animals on pasturelands. Jacobson Reservoir is most vulnerable to urban storm water runoff, which may include heavy metals from paved areas, nutrients, pesticides and organics (e.g., yard waste) from lawn care. Industrial and construction runoff in urban areas may include silts, synthetic chemicals and metals.

A copy of the completed Source Water Assessment and Protection Plan may be viewed by calling our Customer Service Center at (800) 678-6301.

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

- Eliminating excess use of lawn and garden fertilizers and pesticides, since they contain hazardous chemicals that can reach our source water.
- Picking up after your pets.
- Disposing of chemicals properly and taking used motor oil to a recycling center.
- Disposing of used medicine properly (visit our website 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, the company participates in Reforest the Bluegrass annually,

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planting trees near water bodies to enhance our source water protection, and supports the annual River Sweep on the Kentucky River, coordinated by the Ohio River Valley Sanitation Commission (ORSANCO).

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

Kentucky American Water welcomes your comments and questions regarding your water. To provide feedback on decisions that may affect the quality of your water, for questions about your water or this report, or to obtain additional copies of this report, please call our Customer Service Center at (800) 678-6301.

As a customer of a utility regulated by the Kentucky Public Service Commission, you have the opportunity to participate in periodic public hearings regarding Kentucky American Water. For more information about this process, please refer to the Public Service Commission website at <http://psc.ky.gov/> or call (800) 772-4636.

### **Information on the Internet**

The U.S. 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/>

### **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 (800-426-4791).

To ensure tap water is safe to drink, the U.S. Environmental Protection Agency (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.

For our Central Kentucky customers, Kentucky American Water maintains three water treatment plants, the Kentucky River Station, Kentucky River Station II at Hardin's Landing, and the Richmond Road Station, capable of reliably producing up to 85 million gallons of water per day (MGD). Our treatment processes are designed to protect human health by reducing contaminant concentrations to levels well below what might cause health concerns.

### **A Proud Member of the Partnership for Safe Drinking Water Program**

In 2013 Kentucky American Water's Kentucky River Station and Richmond Road Station treatment facilities were awarded the prestigious "Fifteen-Year Director's Award" under 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 award honors water utilities for achieving operational excellence by voluntarily improving their processes and meeting performance goals beyond what is required by federal and state drinking water regulations. Our Richmond Road Station and Kentucky River Station treatment plants in Lexington were among only 16 plants in the country to first achieve this award and the only ones in the Commonwealth of Kentucky at that time. Kentucky American Water remains one of only seven utilities in the state and less than 250 utilities in the country to participate in this program. We are proud to report that we completed our eighteenth successful year in the program in 2016.



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## 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, and was the first utility in the state to do so.



## Special Information about Lead in Drinking 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.

## Commonly Asked Questions

### 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) 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. Hardness levels leaving our water treatment plants in 2016 averaged 155 ppm (hard) or about 9 grains per gallon and ranged from 58 (slightly hard) to 400 ppm (very hard) or about 3 to 23 grains per gallon.

### How much sodium is in my water?

The sodium level is approximately 29 ppm.

### What is the pH (acidity) range of my water?

The pH level averages 7.3 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. The alkalinity averages 81 ppm.

### Is there fluoride in my water?

Yes. Kentucky American Water is required by law to add fluoride to assist in the prevention of dental cavities. The average fluoride level in our distribution system is 0.72 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).

### 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.

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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.

Kentucky American Water began a second round of 24 consecutive months of monitoring for Cryptosporidium in our source waters in 2015. We detected Cryptosporidium in eight of our 27 source water samples in 2015 with levels ranging from 0.089 to 0.390 oocysts per liter. We detected Cryptosporidium in 11 of our 36 source water samples in 2016 with levels ranging from 0.087 to 2.3 oocysts per liter. Kentucky American Water's treatment processes are designed to remove Cryptosporidium from the water, but additional treatment options are being evaluated.

### Unregulated Contaminant Monitoring Rule 3

Monitoring was performed during 2013 under the U.S. Environmental Protection Agency (EPA) Unregulated Contaminant Monitoring Rule 3 (UCMR 3). Unregulated contaminants are those that don't have a drinking water standard set by EPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. Contaminants detected as part of the UCMR 3 monitoring are included in the Water Quality Results table. For a report, containing all testing performed under the UCMR 3 rule, please contact our Customer Service Center at (800) 678-6301.

### Water Quality Data

Kentucky American Water conducts extensive monitoring to ensure that your water meets all water quality standards. The following tables contain results of our monitoring. While most monitoring occurred in 2016, certain substances are monitored less than once per year because the levels do not change frequently. We believe it is important that you know exactly what is in your water and how much of the substance is present in the water. For help with interpreting this table, see "How to Read This Table."

### 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 usually in 2016 or the prior year. **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 better). **Range** tells the highest and lowest amounts measured. **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 that 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 contaminants.
- **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 nanograms per liter.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.

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## Water Quality Results

### Regulated Substances (Measured on the Water Leaving the Treatment Facility)

Substance (units)	Year Sampled	MCL	MCLG	Kentucky River Station (KRS)		Kentucky River Station II at Hardin's Landing (KRS II)		Richmond Road Station (RRS)		Typical Source
				Highest Value	Range Low-High	Highest Value	Range Low-High	Highest Value	Range Low-High	
Fluoride (ppm)	2016	4	4	0.69	NA	0.68	NA	0.64	NA	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	2016	10	10	0.34	NA	0.29	NA	0.12	NA	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Organic Carbon (ppm) <sup>1</sup>	2016	TT	NA	1.11	0.75 - 1.84	1.40	0.74 - 2.18	1.62	1.23 - 3.04	Naturally present in the environment
Turbidity (NTU) <sup>2</sup>	2016	TT	NA	0.09	100% Lowest Monthly	0.13	100% Lowest Monthly	0.11	100% Lowest Monthly	Soil runoff

### Regulated Substances (Measured in the Distribution System)

Substance (units)	Year Sampled	MCL	MCLG	Highest RAA	Range (Low-High)	Typical Source
Total Trihalomethanes (ppb) <sup>3</sup>	2016	80	NA	71	11 - 92	By-product of drinking water disinfection
Haloacetic Acids (ppb) <sup>3</sup>	2016	60	NA	52	3 - 54	By-product of drinking water disinfection
Chloramines (ppm) <sup>4</sup>	2016	MRDL = 4	MRDLG = 4	2.44	0.3 - 4.1	Water additive used to control microbes

### Regulated Substances (Measured at the Customer's Tap)

Substance (units)	Year Sampled	Action Level	MCLG	90 <sup>th</sup> Percentile	Number of Samples	Number of Samples Above Action Level	Typical Source
Copper (ppm) <sup>5</sup>	2015	1.3	1.3	0.147	51	0	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb) <sup>5</sup>	2015	15	0	ND	51	0	Corrosion of household plumbing systems; Erosion of natural deposits

### Microbiological Results (Measured in the Distribution System)

Substance (units)	Year Sampled	MCL	MCLG	Highest Percentage Detected	Typical Source
Total Coliform <sup>6</sup>	2016	5% Positive	0	0.53%	Naturally present in the environment
Total Coliform <sup>6</sup>	2016	TT	NA	2.03%	Naturally present in the environment

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### Unregulated Contaminant Monitoring Rule 3 (Measured on the Water Leaving the Treatment Facility)

Substance (units)	Year Sampled	MCL	MCLG	Kentucky River Station (KRS)		Kentucky River Station II at Hardin's Landing (KRS II)		Richmond Road Station (RRS)		Typical Source
				Average	Range Low-High	Average	Range Low-High	Average	Range Low-High	
Chromium (ppb) <sup>7</sup>	2013	NA	NA	0.28	ND - 0.60	0.18	ND - 0.70	0.23	ND - 0.70	Discharge from steel and pulp mills; Erosion of natural deposits
Chromium-6 (ppb) <sup>7</sup>	2013	NA	NA	0.08	ND - 0.29	0.05	0.04 - 0.08	0.03	ND - 0.08	Naturally-occurring element
Molybdenum (ppb) <sup>7</sup>	2013	NA	NA	ND	ND	0.70	ND - 1.50	ND	ND	Naturally-occurring element found in ores and present in plants, animals and bacteria
Strontium (ppb) <sup>7</sup>	2013	NA	NA	242	133 - 447	177	140 - 226	164	126 - 215	Naturally-occurring element
Vanadium (ppb) <sup>7</sup>	2013	NA	NA	ND	ND	0.20	ND - 0.40	0.05	ND - 0.20	Naturally-occurring elemental metal

### Unregulated Contaminant Monitoring Rule 3 (Measured in the Distribution System)

Substance (units)	Year Sampled	MCL	MCLG	Average	Range (Low-High)	Typical Source
Chromium (ppb) <sup>7</sup>	2013	NA	NA	0.13	ND - 0.50	Discharge from steel and pulp mills; Erosion of natural deposits
Chromium-6 (ppb) <sup>7</sup>	2013	NA	NA	0.12	ND - 0.33	Naturally-occurring element
Molybdenum (ppb) <sup>7</sup>	2013	NA	NA	0.18	ND - 1.10	Naturally-occurring element found in ores and present in plants, animals and bacteria
Strontium (ppb) <sup>7</sup>	2013	NA	NA	231	145 - 390	Naturally-occurring element
Vanadium (ppb) <sup>7</sup>	2013	NA	NA	0.13	ND - 0.40	Naturally-occurring elemental metal

- Total Organic Carbon:** Although the concentration listed is ppm, the values shown are ratios 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.
- 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.
- Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAAs):** Compliance is based on the highest LRAA (locational running annual average) that is calculated quarterly. The highest quarterly LRAA 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. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
- Chloramines:** A public water system shall be in compliance with the MRDL if the running annual average of monthly averages of samples taken in the distribution system computed quarterly is less than or equal to the MRDL.
- Lead and Copper:** Compliance is achieved when at least 90% of samples collected from water standing in contact with plumbing for at least 6 hours are below the Action Level. The 90<sup>th</sup> percentile for lead was below the detection limit.
- Total Coliform Bacteria:** From January 1, 2016 – March 31, 2016, the MCL for total coliforms in large systems was detections in 5% of samples collected. A federal rule change that went into effect April 1, 2016, replaced the MCL for total coliforms with a treatment technique that requires systems to perform system assessments if coliforms are detected in 5% of samples.
- Unregulated Contaminant Monitoring Rule 3 (UCMR3):** Results are for 2013 quarterly monitoring at all Kentucky American Water treatment plants and in the distribution system. Chromium is a regulated contaminant tested with the rest of the UCMR 3 constituents.

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