



Nicholasville Water Department

Water Quality Report for January 1-December 31, 2018

KY0570315

517 N. Main Street
Nicholasville, KY 40356

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Meetings: City Hall

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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. **This report will not be mailed, but is available upon request by calling 859-885-6974.**

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. 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, however non-point source pollution, or "people pollution", can impact source water quality. With each rainfall, herbicides, pesticides, fertilizers, animal wastes, and household chemicals are washed from impermeable surfaces and into storm drains, ditches, sinkholes, or streams that flow into the Kentucky River. Please report any activity that might jeopardize the source water supply.

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.

Variances & 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	0.18	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	10%	Jul-18	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.

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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Radioactive Contaminants

Alpha emitters [4000] (pCi/L)	15	0	2.03	0 to 4.6	Nov-17	No	Erosion of natural deposits
Combined radium (pCi/L)	5	0	0.68	0 to 1.6	Nov-17	No	Erosion of natural deposits

Inorganic Contaminants

Barium [1010] (ppm)	2	2	0.020	0.02 to 0.02	Feb-18	No	Drilling wastes; metal refineries; erosion of natural deposits
Copper [1022] (ppm) sites exceeding action level = 0	AL = 1.3	1.3	0.06 (90 th percentile)	0 to 0.16	Sep-16	No	Corrosion of household plumbing systems
Fluoride [1025] (ppm)	4	4	0.70	0.7 to 0.7	Feb-18	No	Water additive which promotes strong teeth
Lead [1030] (ppb) sites exceeding action level = 0	AL = 15	0	0 (90 th percentile)	0 to 2	Sep-16	No	Corrosion of household plumbing systems
Nitrate [1040] (ppm)	10	10	0.30	0.3 to 0.3	Feb-18	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	1.30 (lowest average)	0.93 to 1.63 (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	1.10 (highest average)	0.2 to 3.74	N/A	No	Water additive used to control microbes.
HAA (ppb) [Haloacetic acids] (Individual Sites)	60	N/A	59 (high site average)	30 to 67 (range of individual sites)	N/A	No	Byproduct of drinking water disinfection
TTHM (ppb) [total trihalomethanes] (Individual Sites)	80	N/A	69.225 (high site average)	27 to 109 (range of individual sites)	N/A	No	Byproduct of drinking water disinfection.

Other Contaminants

Cryptosporidium [oocysts/L]	0	TT (99% removal)	3 (positive samples)	3 (no. of samples)	2018	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.

Maximum Contaminant Level (MCL's) are set at very stringent levels. To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

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 two Level 1 assessments. Two Level 1 assessments were completed. In addition, we were required to take two corrective actions and we completed two of these actions.

2018 Violations:

In October 2018 the Nicholasville WTP received a violation for failure to submit a Level 1 Assessment within 30 days of an exceedance in total coliform testing. Greater than 5% of total coliform tests were positive in July, triggering the Level 1 Assessment. The Level 1 Assessment is required under the Revised Total Coliform Rule (RTCR) to determine possible causes of total coliform positives. Following an inspection of the WTP and points in the distribution system, a Level 1 Assessment was created and submitted later in October.

Kentucky American Water - Central CCR Template

KY0340250

Kentucky Central Division

Fayette and Surrounding Counties

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 7,100 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to more than 13 million people in 46 states and Ontario, Canada. American Water provides safe, clean, affordable and reliable water services to our customers to make sure we keep their lives flowing. For more information, visit amwater.com and follow American Water on [Twitter](#), [Facebook](#) and [LinkedIn](#).

Your Drinking Water Supply

The sources of water for both drinking and bottled water include rivers, lakes, streams, ponds, reservoirs, springs, and wells. When water travels over the surface of the land or through the ground it dissolves naturally occurring minerals (possibly radioactive material) and picks up organic material from the presence of animals or humans. 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 drinking water supply for Kentucky American Water's Central Division is surface water from the Kentucky River and Jacobson Reservoir. The Kentucky River runs south of Lexington and through Owen County and Jacobson Reservoir is located in Fayette County. This surface water provides the primary source of drinking water produced by our three water treatment plants. The Kentucky River Station, Richmond Road Station, and Kentucky River Station II are capable of reliably producing up to a combined total of 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.

Protecting Your Drinking Water Supply

Protecting drinking water at its source is an important part of the process to treat and deliver high quality water. It takes a community effort to protect our shared water resources. This includes utilities, businesses, residents, government agencies and organizations. Everyone who lives, works, and plays in the area has a role and stake in clean water supplies.

What Can You Do?

Quality drinking water starts upstream. Everyone can help maintain and improve drinking water supplies:

- Eliminate excess use of fertilizers and pesticides, they contain hazardous chemicals that can reach our source water.
- Dispose of medicine, household chemicals, oils and paints at proper waste collection sites. Materials can pollute water ways if poured down the drain, flushed down the toilet, or dumped on the ground. Contact your county waste authority to find out how to properly dispose of these materials.
- Check for leaks from automobiles and heating fuel tanks. Clean up any spills using an absorbent material like cat litter. Sweep up the material and put it in a sealed bag in the trash.
- Volunteer with watershed groups in your area.
- Pick up after your pets.
- Remember that storm drains dump directly into local water bodies.

What Are We Doing?

Our vision is Clean Water for Life. Our priority is to provide reliable, quality drinking water for our customers. Protecting the source of our supply is an important part of that mission. We also work to understand and reduce potential risks to your drinking water supply.

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.

Other efforts underway to protect our shared water resources include:

- **Community Involvement:** We have a proactive public outreach program to help spread the word and get people involved. This includes school education, contests, and other community activities.
- **Environmental Grant Program:** Each year, we offer funding for innovative, community-based environmental projects that improve, restore or protect watersheds supplies in our local communities.
- **Pharmaceutical Collection:** We sponsor MedToss, the biannual drug take back event as well as a drop box location at Lexington Police Department lobby for residents to safely dispose of unwanted drugs for free. This helps keep pharmaceutical products from entering water supplies.
- **Backflow Prevention Program:** Ensures the 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.kentuckyamwater.com, or contact the Cross Connection department at KAW.cc@amwater.com or (859)268-6310.

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 or 859-269-2386 ext 6 for Dorothy Rader, Manager, Water Quality and Environmental Compliance.

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.

Member of the Partnership for Safe Drinking Water Program

In 2018 Kentucky American Water's Kentucky River Station and Richmond Road Station treatment facilities were awarded the prestigious Twenty-Year Director's Award under the Partnership for Safe Water. Our Kentucky River Station II plant achieved its First Director's Award. The Partnership for Safe Water is 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.



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.

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.

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).

Information on the Internet

The U.S. Environmental Protection Agency, 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:

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.

Kentucky American Water began a second round of 24 consecutive months of monitoring for *Cryptosporidium* in our source waters in April 2015. Sample results were as follows:

- 2015: *Cryptosporidium* detected in 8 of our 27 source water samples with levels ranging from 0.089 to 0.390 oocysts per liter
- 2016: *Cryptosporidium* detected in 11 of our 36 source water samples with levels ranging from 0.087 to 2.3 oocysts per liter
- 2017: *Cryptosporidium* detected in 3 of our 9 source water samples with levels ranging from 0.089 to 0.744 oocysts per liter

Kentucky American Water's treatment processes are designed to remove *Cryptosporidium* from the water, but additional treatment options are being evaluated.

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>.

Availability of Monitoring Data for Unregulated Contaminants for Kentucky American Water

Our water system has sampled for a series of unregulated contaminants. Unregulated contaminants are those that don't yet have a drinking water standard set by USEPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. Kentucky American Water completed testing for cyanotoxins in 2018 which includes, microcystins, anatoxin-a, and cylindrospermopsin with no detections in 2018. As our customers, you have a right to know that this data is available. If you are interested in examining the results, please contact Dorothy Rader, Manager, Water Quality and Environmental Compliance at 859-269-2386 ext 6 or 2300 Richmond Road, Lexington KY 40502

This notice is being sent to you by Kentucky American Water, State Water System ID#: KY0340250
Date distributed: 05-01-19.

Water Quality Testing

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 2018, 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.

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 2018 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

- **Action Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **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.
- **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 residual disinfectant level or 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 or 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.
- **NA:** Not applicable
- **ND:** Not detected
- **NTU (Nephelometric Turbidity Units):** A measurement of the clarity, or turbidity, of the water.
- **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.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.

Water Quality Results

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 a year old.

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

Substance (units)	Year Sampled	MCL	MCLG	Kentucky River Station (KRS)		Richmond Road Station (RRS)		Kentucky River Station II (KRS II)		Typical Source
				Highest Value	Range Low-High	Highest Value	Range Low-High	Highest Value	Range Low-High	
Fluoride (ppm)	2018	4	4	0.95	NA	0.79	NA	0.89	NA	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	2018	10	10	0.44	NA	0.47	NA	0.60	NA	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Organic Carbon (ppm) ¹	2018	TT	NA	1.27	1.00-1.70	1.51	1.00-2.51	1.61	1.25-2.42	Naturally present in the environment

Turbidity (NTU) ²	2018	TT	NA	0.09	100% Lowest Monthly	0.10	100% Lowest Monthly	0.08	100% Lowest Monthly	Soil runoff
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Regulated Substances (Measured in the Distribution System)

Substance (units)	Year Sampled	MCL	MCLG	Highest RAA	Range (Low-High)	Typical Source
Total Trihalomethanes (ppb) ³	2018	80	NA	60	16-110.7	By-product of drinking water disinfection
Haloacetic Acids (ppb) ³	2018	60	NA	47	1.8-54.2	By-product of drinking water disinfection
Chloramines (ppm) ⁴	2018	4	4	2.53	0.55-3.87	Water additive used to control microbes

Maximum Contaminant Level (MCL's) are set at very stringent levels. To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Regulated Substances (Measured at the Customer's Tap)

Substance (units)	Year Sampled	Action Level	MCLG	90 th Percentile	Number of Samples	Number of Samples Above Action Level	Typical Source
Copper (ppm) ⁵	2018	1.3	1.3	0.232	64	0	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb) ⁵	2018	15	0	ND	64	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	2018	TT	NA	1.05	Naturally present in the environment

¹**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. The number reported in the Highest Value column is actually the lowest RAA, calculated quarterly, for the year.

²**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. Lowest monthly percentage of samples meeting the turbidity limit = 100%.

³**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.

⁴**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.

⁵**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 90th percentile for lead was below the detection limit.