Nicholasville Water Department
Water Quality Report for 2017

KY0570315

517 N. Main Street
Nicholasville, KY 40356

Manager: **James L. McDaniel**
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Water - Essential for Life

Meetings: City Hall
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 susceptability of the Nicholasville Utilities water supply to contamenation indicates that the susceptability 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:

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.

Information About Lead:

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.

Spanish (Español) Este informe contiene información muy importante sobre la calidad de su agua beber. Tradúzcalo o hable con alguien que lo entienda bien.

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	3.33%	Jan-17	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
Radioactive Contaminants							
Alpha emitters [4000] (pCi/L)	15	0	2.03	0 to 4.6	Feb-17	No	Erosion of natural deposits
Combined radium (pCi/L)	5	0	0.68	0 to 1.6	Aug-17	No	Erosion of natural deposits
Inorganic Contaminants							
Barium [1010] (ppm)	2	2	0.020	0.02 to 0.02	Feb-17	No	Drilling wastes; metal refineries, erosion of natural deposits
Beryllium [1075] (ppb)	4	4	0.100	0.1 to 0.1	Feb-17	No	Coal-burning factories; metal refineries, electrical, defense, and aerospace industries
Copper [1022] (ppm) sites exceeding action level = 0	AL = 1.3	1.3	0.060 (90th percentile)	0 to 0.16	Sep-16	No	Corrosion of household plumbing systems
Fluoride [1025] (ppm)	4	4	0.80	0.7 to 0.8	Sep-17	No	Water additive which promotes strong teeth
Lead [1030] (ppb) sites exceeding action level = 0	AL = 15	0	0 (90th percentile)	0 to 2	Sep-16	No	Corrosion of household plumbing systems
Nitrate [1040] (ppm)	10	10	0.02	0.02 to 0.02	Feb-17	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	1.34 (lowest average)	1.00 to 1.74 (monthly ratios)	N/A	No	Naturally present in environment.
*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	1.08 (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	47 (high site average)	14 to 68 (range of individual sites)	N/A	No	Byproduct of drinking water disinfection.
TTHM (ppb) [total trihalomethanes] (Individual Sites)	80	N/A	66.825 (high site average)	17 to 114 (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

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.

2017 Violations:

In November 2017 the Nicholasville WTP received a Notice of Violation (NOV). This violation was for failure to submit our calendar year 2015 Consumer Confidence Report (CCR) to the state. A final version of the calendar year 2015 CCR has been submitted to the state with our 2017 CCR. Steps have been implemented to ensure timely delivery of future CCR's.

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Monitoring Requirements Not Met for Nicholasville WTP

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 March 2017 we did not complete all monitoring or testing for TOC and during July 2013 we did not complete all monitoring or testing for chlorine and therefore cannot be sure of the quality of our drinking water during that time.

What should I do?

There is nothing you need to do at this time.

The table below lists the contaminant(s) we did not properly test for during the last year, how often we are supposed to sample for TOC and how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date on which follow-up samples were (or will be) taken.

Contaminant	Required sampling frequency	Number of samples taken	When samples should have been taken	When samples were taken
TOC	1 per month	0	March 2017	March 2017
Chlorine	daily	31	July 2013	July 2013

What is being done?

In March of 2017 a TOC sample was submitted for analysis, but a laboratory error in reporting prevented the results arriving to the primacy agency in a timely manner. Steps have been taken to assure the submittal of lab results before the monitoring period ends. Total Organic Carbon (TOC) naturally occurs in the environment and it is analyzed to determine the potential for the formation of other contaminants. In July 2013 finished water chlorine results for July 31 were accidentally omitted from our Monthly Operating Report (MOR) due to a typographical error. The corrected report was resubmitted after the due date of the MOR. Steps have been taken to assure complete and accurate MOR reporting.

For more information, please contact Jim McDaniel at 859-885-6974 or by mail at 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.

This notice is being sent to you by the Nicholasville WTP. State Water System ID# KY0570315
Date distributed: _____.

2017 Annual Water Quality Report

Kentucky Central Division
Fayette and Surrounding Counties
PWS ID: KY0340250

KENTUCKY AMERICAN WATER

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. 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. We detected Cryptosporidium in 3 of our 9 source water samples in 2017 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.

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.

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.

Mandatory Language
Mandatory language if applicable to results
Required Content, suggested language
Update language when applicable
Optional Content
Remove highlights only upon completion of final review

Water Quality Results

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)	2017	4	4	0.73	NA	0.71	NA	0.61	NA	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	2017	10	10	0.22	NA	0.12	NA	0.88	NA	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Organic Carbon (ppm)[1]	2017	TT	NA	1.28	1.00-2.32	1.45	1.31-2.14	1.55	1.34-2.24	Naturally present in the environment
Turbidity (NTU)[2]	2017	TT	NA	0.07	100% Lowest Monthly	0.09	100% Lowest Monthly	0.09	100% Lowest Monthly	Soil runoff
2,4-D (ppb)	2017	70	70	ND	ND	0.3	ND-0.3	0.3	ND-0.3	Runoff from herbicide used on row crops

Substance (units)	Year Sampled	MCL	MCLG	Highest RAA	Range (Low-High)	Typical Source
Total Trihalomethanes (ppb)[3]	2017	80	NA	64	18.9-91.8	By-product of drinking water disinfection
Haloacetic Acids (ppb)[3]	2017	60	NA	46	4.5-57.8	By-product of drinking water disinfection
Chloramines (ppm)[4]	2017	4	4	2.3	0.5-4.6	Water additive used to control microbes

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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	Typical Source
Copper (ppm)[5]	2015	1.3	1.3	0.147	51	0	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)[5]	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	2017	TT	NA	1.05%	Naturally present in the environment

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)[6]	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)[6]	2013	NA	NA	0.08	ND - 0.29	0.05	0.04 - 0.08	0.03	ND - 0.08	Naturally-occurring element
Molybdenum (ppb)[6]	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)[6]	2013	NA	NA	242	133 – 447	177	140 – 226	164	126 – 215	Naturally-occurring element

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Vanadium (ppb)[6]	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)[6]	2013	NA	NA	0.13	ND - 0.50	Discharge from steel and pulp mills; Erosion of natural deposits
Chromium-6 (ppb)[6]	2013	NA	NA	0.12	ND - 0.33	Naturally-occurring element
Molybdenum (ppb)[6]	2013	NA	NA	0.18	ND - 1.10	Naturally-occurring element found in ores and present in plants, animals and bacteria
Strontium (ppb)[6]	2013	NA	NA	231	145 - 390	Naturally-occurring element
Vanadium (ppb)[6]	2013	NA	NA	0.13	ND - 0.40	Naturally-occurring elemental metal

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.
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.
3. **Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAAs):** Compliance based on the highest LRAA (locational running annual average) that is calculated quarterly. The highest quarterly LRAA is the measured value in the table.
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.
6. **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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