



2020 WATER QUALITY REPORT

DELIVERING HIGH QUALITY WATER TO YOUR TAP



THE WORK WE DO IS IMPORTANT TO THE CITY, AND TO YOU

There is a widely held belief at KC Water and throughout municipal water utilities nationwide that our customers take us for granted. That is both a good thing and a bad thing.

It's a good thing because it means we're doing our job: Providing excellent water, wastewater, and stormwater services to today's customers while preserving the environment for future generations. We want every customer to have clean, delicious tap water, whether they are thinking about where it comes from or not. We like it when customers know we are treating wastewater responsibly to protect our streams and rivers.

Being taken for granted is a bad thing because the nearly 850 associates of KC Water – your neighbors, since we all live in Kansas City, Mo. – rarely get recognition for the critical products and services that customers take for granted.

While we appreciate the kind words we've seen on social media and in other places, this also is true during COVID-19, when life changed for all of us in and out of KC Water.

We are proud of our water and wastewater treatment plant and field operation workers, who must take extraordinary precautions to remain safe while cleaning Missouri River water they deliver to you and processing wastewater and material that is flushed and drained. Every hour of every day, KC Water associates are doing that work.

We are grateful to our dispatch center, inspectors, and maintenance crews, who work around the clock to repair main breaks or unclog sewers, keeping 5,600 miles of pipelines flowing to and from the City.

We appreciate our engineering staff and contractors, who keep our infrastructure update projects on track. This fiscal year, we will invest \$108.2 million on 34 projects to improve water infrastructure, and \$269 million on 37 projects to improve wastewater infrastructure, including the federally mandated Smart Sewer program.

Thank you to our customer service, finance, human resources, laboratory services and other divisions, many of whom did their important support work from home or adjusted work schedules.

We report to you herein the data related to the quality of your drinking water from Jan. 1 to Dec. 31, 2019, which surpassed federal and state standards. More information – including how to stay informed on water quality – is available at www.kcwater.us.

Water is essential to life. KC Water associates are grateful for the privilege to be stewards of life's most important natural resource on behalf you and the more than 491,000 residents and 34 wholesale customers we serve.

– Terry Leeds, Director
KC Water

KEEPING WATER SAFE FOR YOU

The safety of your drinking water is our top priority. KC Water meets or exceeds federal and state regulations for water safety.

We regularly monitor the water you receive for more than 250 organic and inorganic constituents. Our certified laboratory tests water at the treatment plant and from throughout the 2,800-mile distribution system.

Coronavirus or COVID-19

According to the World Health Organization (WHO) and the U.S. Environmental Protection Agency (EPA), there is no evidence the COVID-19 virus is present in or is transferred by drinking water supplies. Water treatment requirements include filtration and disinfectants that remove or kill pathogens such as viruses. More information is available at www.epa.gov/coronavirus/frequent-questions-about-drinking-water-and-coronavirus-covid-19.

Turbidity and Cryptosporidium

Melting snow, rain runoff, and high floodwaters on the Missouri River in March 2019 affected KC Water's ability to make very fine particles settle out of the water we treated. As a result, KC Water reported to the Missouri Department of Natural Resources and publicly announced our inability to meet a treatment filtration standard known as turbidity.

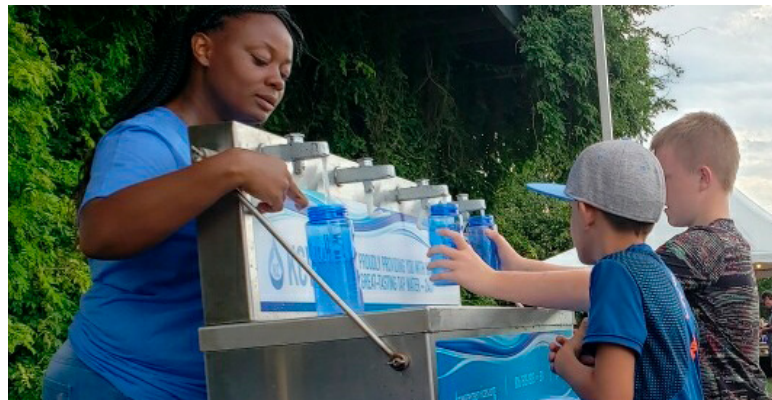
KC Water adjusted treatment daily and conducted additional water quality tests. KC Water reported on March 29, 2019, that turbidity levels were within standards. Turbidity levels for all of 2019 were in compliance with regulatory standards.

Inadequately treated water may contain disease-causing organisms such as bacteria, viruses, and parasites. Included is cryptosporidium, a microbial pathogen that contaminates most surface waters nationwide. Consuming water with cryptosporidium can cause gastrointestinal illness with symptoms such as nausea, abdominal cramps, diarrhea, and associated headaches.

Most healthy individuals are able to overcome any infection. However, illness caused by cryptosporidium or other naturally occurring constituents may be severe and sometimes fatal for people with weakened immune systems, infants, the elderly, pregnant women, and people with HIV/AIDS. Customers and caregivers of customers with these or similar health conditions should consult a health care provider about precautions to consider regarding tap water.

Lead and Copper

KC Water takes proactive measures to ensure lead and copper are not present in the water we deliver. If these constituents are found, the most typical source is corrosion of pipes and fixtures in home or business plumbing, or in service lines between water mains and structures. Copper and lead can leach into water that sits for a time in these pipes



The Water Bar is a popular refreshment stop at Kansas City festivals.

and plumbing fixtures.

We encourage customers to replace any plumbing that may contain lead or copper. To find a licensed plumber, visit <http://city.kcmo.org/kc/Codes/LicensedContractors> and select "Plumbing Contractor" from the drop-down tab to create a list.

Alternatively, here are steps to consider:

- Use only cold water for drinking and cooking, especially water used to make infant formula, beverages such as coffee or tea, and ice.
- Run cold water from 30 seconds to 2 minutes, or at least until the temperature changes.
- Use a water filter certified to meet NSF Standard 53 for lead removal.

Fluoride

Fluoride is a naturally occurring constituent in surface water caused by erosion of natural deposits, fertilizer runoff, and factory discharges. To promote strong teeth, Kansas City, Mo., voters approved water fluoridation in 1980. Fluoride in our water meets the Centers for Disease Control and Prevention's optimal target fluoride level and is, on average, well within federal and state regulations.

Questions?

If you have questions or concerns about any constituent in Kansas City's tap water, here are ways to learn more:

- Call the KC Water Laboratory at (816) 513-7000.
- Check the Missouri DNR Water Watch at <http://dnr.mo.gov/DWW/indexSearchDNR.jsp>. Enter "1010415" in the Water System Number box.
- Have the water in your home or business tested by a private laboratory for a fee. Information about testing laboratories can be found at <http://dnr.mo.gov/env/wpp/labs/index.html>.
- Contact the EPA's Safe Drinking Water Hotline at 800-426-4791, or visit <http://water.epa.gov/drink/info/lead/index.cfm>.

STATE OVERSIGHT AND ASSESSMENT OF OUR WATER SOURCE

The Missouri Department of Natural Resources conducted a source water assessment to see how susceptible our water source – the Missouri River and 14 wells fed by the river and groundwater – may be to potential contaminants. The agency defined our water source area and inventoried contaminants within that area to check for potential

water quality threats.

Data from that assessment is included in this Water Quality Report and at <https://drinkingwater.missouri.edu>. Enter 1010415 for more KC Water data and information.

WE CONSTANTLY TEST YOUR DRINKING WATER TO ENSURE SAFETY

Water is a natural element, and as such there will be small amounts of many constituents in any glass of water you drink.

Federal and state agencies regulate the amounts of certain constituents in water provided by public water systems. To ensure compliance, KC Water constantly tests tap water when it leaves our water treatment plant and from several testing stations throughout our 2,800-mile water distribution system.

These tables provide our test results for Jan. 1 to Dec. 31, 2019. One regulatory violation – turbidity treatment filtration standard in March – was found in drinking water provided by KC Water in 2019. Generally, we test waters for these kinds of constituents:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

REGULATED CONTAMINANTS

Regulated Contaminants	Collection Date	Highest Test Result	Range of Sampled Result(s)	Unit	MCL	MCLG	Typical Source	In Compliance
Atrazine	5/29/2019	0.16	ND - 0.16	ppb	3	3	Runoff from herbicide used on row crops	✓
Barium	6/4/2019	0.028	0.007 - 0.028	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	✓
Chromium	2/28/2019	5	ND - 5	ppb	100	100	Discharge from steel and pulp mills	✓
Fluoride	11/8/2019	0.87	ND - 0.87	ppm	4	4	Natural deposits; water additive which promotes strong teeth	✓
Nitrate-Nitrite	1/12/2019	2.82	0.506 - 2.82	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	✓
Selenium	5/31/2019	2.8	1.5 - 2.8	ppb	50	50	Erosion of natural deposits	✓

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as farming operations, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production. These contaminants also can come from gas stations, urban stormwater runoff, and septic systems.

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

DRINKING WATER DISINFECTION

Disinfectant	Collection Date	Highest Test Result	Range of Sampled Result(s) (low-high)	Unit	MRDL	MRDLG	Typical Source
Chlorine, Total	11/15/2019	3.8	0.5-3.8	ppm	4	4	Disinfectant to control microbes

BYPRODUCTS OF DRINKING WATER DISINFECTION

Disinfection Byproducts	Sample Point	Highest LRAA	Range of Sampled Result(s) (low - high)	Unit	MCL	MCLG	In Compliance
HAA5	DBPDUAL-06	23.1	8.6 - 30.6	ppb	60	0	✓
TTHM	DBPDUAL-03	10.8	ND - 22.2	ppb	80	0	✓

TOTAL ORGANIC CARBON

TOC	Collection Date	Highest Value	Range of Sampled Result(s)	Unit	TT	Typical Source	In Compliance
Carbon, Total	10/1/2019	4.7	2.07 - 4.7	ppm	0	Naturally present in the environment	✓

LEAD AND COPPER

Lead and Copper	Collection Date	90% of KC water levels were less than	Range of Sampled Result(s)	Unit	AL	Sites Over AL	Typical Source	In Compliance
Copper	2019	0.004	ND - 0.022	ppm	1.3	0	Corrosion of household plumbing systems	✓
Lead	2019	2.1	ND - 35.8	ppb	15	1	Corrosion of household plumbing systems	✓

WATER CLOUDINESS (TURBIDITY)

% of samples in compliance with standard	Months Occurred	Monitoring Violation	Highest Single Measurement	Month Occurred	Sources	In Compliance
97	12	No	0.96 NTU	March	Soil Runoff	✓

MICROBIOLOGICAL CONTAMINANTS

Microbiological	Result	MCL	MCLG	Typical Source	In Compliance
Coliform (TCR)	In the month of July, 2.69% of samples returned as positive	TT	N/A	Naturally present in the environment	✓

UNREGULATED CONTAMINANT MONITORING RULE

Unregulated Contaminant Monitoring Rule	Recommended Federal Level	Average Value	Range of Sampled Results	Unit
Manganese	N/A	0.7	ND - 0.7	ppb
Total HAA5	60	14.9	7.4 - 33.1	ppb
Total HAA6 Br	N/A	1.8	1.0 - 3.2	ppb
Total HAA9	N/A	16.8	8.5 - 34.8	ppb

SECONDARY CONSTITUENTS

Secondary Constituents	Collection Date	Your Water System Highest Sampled Result	Range of Sampled Results (low - high)	Unit	SMCL
Alkalinity, Total	3/24/2019	72	17 - 72	ppm	
Aluminum	1/11/2019	0.067	ND - 0.067	ppm	
Boron	5/31/2019	0.054	ND - 0.054	ppm	
Bromide	6/16/2019	0.499	ND - 0.499	ppm	
Calcium	4/28/2019	52.5	22.1 - 52.5	ppm	
Chloride	3/8/2019	32.8	10 - 32.8	ppm	250
Foaming Agents (Surfactants)	1/2/2019	0.03	ND - 0.03	ppm	
Iron	8/11/2019	0.026	ND - 0.026	ppm	0.3
Magnesium	9/3/2019	7.37	2.44 - 7.37	ppm	
Molybdenum	5/31/2019	0.003	ND - 0.003	ppm	
Nickel	3/14/2019	0.002	ND - 0.002	ppm	
pH	3/24/2019	10.3	9.5 - 10.3	SU	8.5
Phenols	6/5/2019	0.045	ND - 0.045	ppm	
Potassium	8/2/2019	8.09	5.38 - 8.09	ppm	
Silica	4/4/2019	4.85	2.32 - 4.85	ppm	
Sodium	11/7/2019	63.1	23.6 - 63.1	ppm	
Strontium	9/8/2019	0.26	0.17 - 0.26	ppm	
Sulfate	7/23/2019	235	58.4 - 235	ppm	250
TDS	12/12/2019	524	68 - 524	ppm	500
Total Hardness	4/28/2019	142	75 - 142	ppm	
Vanadium, Total	5/11/2019	0.003	ND - 0.003	ppm	
Zinc	4/20/2019	0.006	ND - 0.006	ppm	5

TABLE INFORMATION AND ABBREVIATIONS

AL: Action Level, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

HAA5: Haloacetic Acids (mono-, di- and tri-chloroacetic acid, and mono- and di- bromoacetic acid) as a group.

HAA6Br: Bromochloroacetic acid, bromodichloroacetic acid, dibromoacetic acid, dibromochloroacetic acid, monobromoacetic acid, tribromoacetic acid.

HAA9: Bromochloroacetic acid, bromodichloroacetic acid, chlorodibromoacetic acid, dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, tribromoacetic acid, trichloroacetic acid.

LRAA: Locational Running Annual Average, or the locational average of sample analytical results for samples taken during the previous four calendar quarters.

MCLG: Maximum Contaminant Level Goal, or 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.

MCL: Maximum Contaminant Level, or 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.

N/A: Not applicable.

ND: Not detectable at testing limits.

NTU: Nephelometric Turbidity Unit, used to measure cloudiness in drinking water.

ppb: Parts per billion or micrograms per liter.

ppm: Parts per million or milligrams per liter.

RAA: Running Annual Average, or the average of sample analytical results for samples taken during the previous four calendar quarters.

Range of Results: Lowest and highest levels found during a

testing period.

SMCL: Secondary Maximum Contaminant Level, or secondary standards. Secondary standards are non-enforceable drinking-water guidelines that may cause cosmetic effects such as skin or tooth discoloration; or aesthetic effects such as taste, odor, or color. EPA recommends these standards but does not require compliance.

TCR: Total Coliform Rule

TDS: Total Dissolved Solids

TT: Treatment Technique, or a required process intended to reduce the level of a contaminant in drinking water.

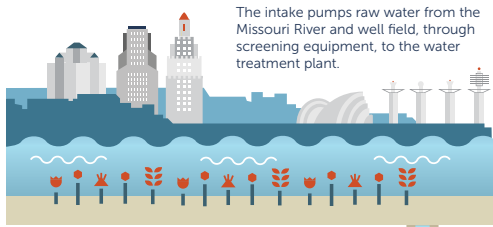
THM: Total Trihalomethanes (chloroform, bromodichloromethane, dibromochloromethane, and bromoform) as a group.

Kansas City's Water Treatment Process



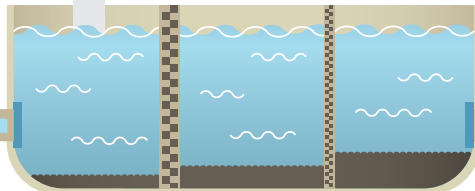
1. SOURCE

The intake pumps raw water from the Missouri River and well field, through screening equipment, to the water treatment plant.



2. SEDIMENTATION

Raw water enters into the basin where debris and other impurities are allowed to settle. Chemicals, which act like magnets to attract fine debris and impurities, are added during certain times of the year to improve the settling process and minimize cloudiness in the water.

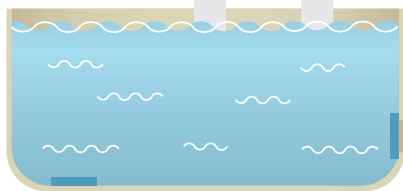


LIME

CHLORINE

3. SOFTENING & DISINFECTION

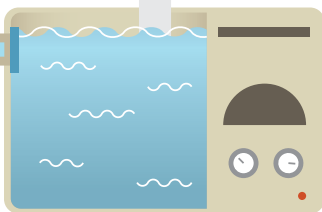
Raw water travels down channels where lime is added for softening and for improving taste and odor, and where chlorine is added for disinfection. This is where raw water begins its transformation into high-quality drinking water.



CO₂

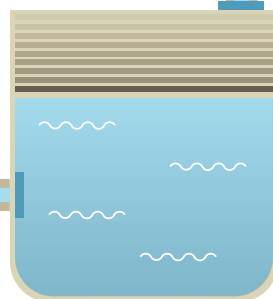
4. STABILIZATION

The water is stabilized to prevent corrosive properties from emerging, and any lime that is still present is allowed to settle. Depending on the seasonal conditions of the Missouri River, carbon can be added at this step of the process to improve taste and odor. The water is then stabilized to the proper pH.



5. FILTRATION

Finally, the water is filtered to remove calcium carbonate and any other impurities that may still exist. The water is filtered through 27" of fine sand, which catches and removes any remaining impurities. The drinking water is now finished and is ready for delivery to customers. The entire process takes about 18 hours to go from raw river water to high-quality drinking water. This important process takes place 24 hours a day, 365 days a year.



FLUORIDE

6. TRANSMISSION & DISTRIBUTION

Using large and powerful pumps, high-quality and great-tasting drinking water is sent through 2,800 miles of water pipes to elevated storage tanks, reservoirs, and ultimately to the taps of customers throughout KC.



TREATMENT INVOLVES MANY STEPS

KC Water associates treat about 90 million gallons of Missouri River water every day for delivery to more than 491,000 residents and 34 wholesale customers, many of which are nearby local water utilities.

KC Water draws the water from the river; removes debris and mud; and disinfects, softens, and stabilizes the water. We filter the water and deliver it citywide via four major pump stations, 14 re-pump stations, numerous water storage facilities, and approximately 2,800 miles of water mains.

For more information about water treatment and regulations visit <https://www.epa.gov/dwreginfo>.

Watch a short video about visit the KC Water YouTube channel at <https://www.youtube.com/user/KCMOWater> and search for "From River to Tap: KC's Water Treatment Process."

THE VALUE OF LOCALLY TREATED TAP WATER

Reliable

From the Rocky Mountains and through most of the Great Plains, the Missouri River drains from a watershed that covers more than half a million square miles in all or part of 10 states and two Canadian provinces.

Safe

Experienced, trained, and certified treatment plant operators have won statewide recognition for their performance and expertise. Certified KC Water chemists and trained technicians check thousands of samples annually for more than 250 constituents.

Affordable

Kansas City's drinking water costs a little more than one-half cent per gallon. A penny will purchase almost two gallons of tap water. Bottled drinking water at a wholesale store can average 3.6 cents per gallon, more than 180 times the cost of Kansas City tap water.

Tastes Great

We treat drinking water not only to be safe, but also to taste and smell good. We work hard to meet and exceed your expectations for quality refreshment and taste.

EXTRA STEPS HELP MAKE KC WATER THE BEST

Beyond making sure that the water we deliver is safe and healthy, we go beyond the regulatory requirements to adjust for aesthetic and cosmetic factors of water you drink.

The objective is to deliver a high-quality product that is excellent not only for drinking, but also for bathing, laundering, dishwashing, and recreational uses such as spray toys and pools . . . water that is excellent in every respect while also protecting the environment.

Hardness

“Hardness” describes the mineral content in water. Hardness is measured by the amount of calcium carbonate in a liter of water. Calcium carbonate also is found in baking powder, toothpaste, antacids, dietary supplements, pharmaceutical tablets and other consumer products.

KC Water softens Missouri River considerably at our Water Treatment Plant. Water we deliver contains about 100 parts per million (ppm) of calcium carbonate per liter, meaning it is considered “moderately hard” on the water hardness scale. (Soft water is 75 ppm or less;

moderately hard is 75-150 ppm; hard water is 150-300 ppm, and very hard water is greater than 300 ppm.)

Taste, Odor, and Color

KC Water works hard to make sure we consistently deliver great-tasting, high-quality water, including special treatment to control the taste, odor, and color of the water you use.

The Missouri River, while abundant, can also be very fickle. Spring rains, fall leaves, changing Midwest temperatures, melting snow from the Rockies, and releases from upstream reservoirs affect river water quality. Silt and natural organic matter sometimes cause earthy and musty odors, off flavors, a slight greenish tint, or cloudiness, also known as turbidity.

You may or may not notice these natural changes, depending on your unique sense of smell and taste. If you do, rest assured: KC Water performs continuous monitoring and extensive laboratory testing to ensure that safe water is delivered to you and that it meets all state and federal safety requirements for drinking water.



WE NOTIFY YOU WITH WATER QUALITY UPDATES

Concerned about what's up with your water?

We notify affected customers in several ways. Here is how to get information about any situation that might affect your water, including weather, other natural occurrences, or infrastructure issues such as water main breaks or sewer backups.

AlertKC: KCWater and other Kansas City, Mo., departments use this free text notification system to provide authoritative, rapid, and secure information about situations that could affect life and property, including water quality, severe weather, and flooding. Register at <http://kcmo.gov/alertkc>.



Social Media: Urgent information about water quality issues is posted on these KC Water channels:

Facebook: www.facebook.com/kcmowater

Twitter: @kcmowater

Nextdoor: www.nextdoor.com

www.kcwater.us.

Any water quality situation that requires public notice or action will be posted on the KC Water website. Additional information about public notices related to water quality issues is available at www.kcwater.us/boil-advisories-and-orders.

Traditional Media: Check your favorite media outlet, or see KC Water news releases at www.kcwater.us/news.



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