TULSA'S 2019 ANNUAL WATER QUALITY REPORT

Este Informe contiene información importante. Se puede obtener una versión en español de este documento en la página web de la ciudad de Tulsa https://www.cityoftulsa.org/government/departments/water-and-sewer/water-supply/water-quality/. O puede llamar al Centro de Atención al Cliente al Tulsa 311 para pedir una copia impresa.

Our city's top priority is to provide clean, good-tasting water to its customers. Tulsa water is safe to drink and free of bacteria and harmful substances. City chemists and plant operators test the water when it enters the pipes at our source water lakes. They continue to monitor the water throughout treatment and distribution. When the water leaves the treatment plant and flows toward Tulsa's homes and businesses, it not only meets, but surpasses all federal requirements for public health standards.

Rainwater flows downhill both over the land and under the ground to collect in streams and in our lakes. As water travels to our lakes, it dissolves minerals naturally found in rocks and soil. The water can also pick up harmful materials like pesticides, herbicides and bacteria left in and on the ground after human or animal activity.

Tulsa's drinking water comes from three lakes in northeastern Oklahoma: (1) Lake Oologah on the Verdigris River (in Rogers and Nowata counties), (2) Lakes Spavinaw and Eucha on Spavinaw Creek (in Mayes and Delaware counties), and (3) Lake Hudson on the Neosho River (in Mayes County). Water samples from the lakes are analyzed to determine our source water quality.

Water flows from the source lakes through pipes to Tulsa's two water treatment plants, where it is treated to meet drinking water and public health standards. City chemists and plant operators analyzed over 32,000 samples in 2018 to be sure the water supplied to homes and businesses is of the highest quality. This report is a summary of test results from samples taken during 2018.

The Environmental Protection Agency (EPA) limits how much of a harmful substance is in the public water supply after water treatment. The Food and Drug Administration (FDA) sets similar limits for bottled water.

The Oklahoma Department of Environmental Quality (ODEQ) has studied our source lakes. Their Source Water Assessment showed that human activities could pollute this water. For more information about this study or how the ODEQ works to protect source water, contact ODEQ at (405) 702-8100, or visit www.deq.state.ok.us/wqdnew/sourcewater/index.html.

IMPORTANT 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).

Continued…

Which Plant Treats Your Drinking Water?

Water moves through more than 2,200 miles of underground water lines from Tulsa's treatment plants to water faucets throughout the City of Tulsa. Usually, residents in the north and west portions of Tulsa receive water from the Mohawk plant. Those living in the south and east areas of Tulsa receive water from the A.B. Jewell plant. Both plants serve the central areas of the city. Because of daily changes in supply and demand, both plants can serve all areas of the city when necessary.

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If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Tulsa 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 two 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 www.epa.gov/safewater/lead.

In our mission to provide the highest quality water, the City of Tulsa joined the Partnership for Safe Water, a national volunteer initiative developed by the United States Environmental Protection Agency (EPA), American Water Works Association (AWWA), states and the water supply community. Our participation in this program will help ensure that our customers are receiving the highest quality drinking water and are protected from microbial contaminants such as Cryptosporidium.

For more information on the City of Tulsa's participation in the Partnership for Safe Water, contact Rachel Watts (918) 576-5369.

HOW TO CONTACT US:

For Water Quality Questions or Concerns:
Water Quality Assurance (918) 591-4378

For taste and color concerns or line breaks:
Water Distribution at (918) 596-9488

For Billing questions: **Customer Care at 311**

This report can be found online at:
www.cityoftulsa.org/waterquality

For more information, call our office at (918) 596-1824 or write to TMUA, 175 East 2nd Street Suite 1400, Tulsa, OK 74103.

THE TULSA METROPOLITAN UTILITY AUTHORITY (TMUA) INVITES YOU TO GET INVOLVED

Meetings that deal with decisions about our water are held on the second and fourth Wednesdays of the month. Agendas are posted on the electronic marquee in the City Hall entry at 2nd and Cincinnati, and online at https://www.cityoftulsa.org/government/meeting-agendas/. We encourage our customers to participate in the decisions that affect the quality of our drinking water by attending a meeting.

TMUA MEMBERS

Louis Reynolds, Chair

Jack Neely

Richard Sevenoaks

Candice Cheeseman

Jim Cameron

Rick Hudson

Mayor GT Bynum

www.cityoftulsa.org/TMUA

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CITY OF TULSA 2018 WATER QUALITY DATA

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). Terms and Abbreviations used in the table below are located on the next page.

**Data collected quarterly 2014. Monitoring frequency is in compliance with regulation. ***2018 monitoring violation incurred, see Public Notice (PN) on the next page for more information.

Regulated Contaminants	Level Found	Minimum	Maximum	Maximum Contaminant Level (MCL*)	MCLG*	Violation	Likely Source of Contaminants
Turbidity Level found			0.20	TT*=less than 0.3 NTU 95 percent of the time	N/A	No	Soil runoff.
Lowest monthly % meeting regs	100.0%						
Barium	0.044	0.032	0.060	2 parts per million	2	No	Naturally present in the environment, drilling waste, metal refineries.
Total Chlorine	2.5	1.5	3.0	MRDL*=4.0 parts per million annual avg.	4	No	Water additive to control microbes.
Chlorite	0.03	0	0.11	1 part per million	0.8	No	By-product of drinking water disinfection.
Total Chromium**	0.14	0	0.28	100 parts per billion	100	No	Discharge from steel and pulp mills; erosion of natural deposits.
Copper	0.395 parts per million (ppm) at the 90th percentile; 0 sites above AL*			AL* = 1.3 parts per million (ppm) at 90th percentile	1.3	No	Corrosion of household plumbing systems, erosion of natural deposits, leaching from wood preservatives.
Fluoride	0.68	0.31	0.96	4 parts per million	4	No	Erosion of natural deposits, water additive which promotes strong teeth, discharge from fertilizer and aluminum factories.
Lead	1.65 parts per billion (ppb) at the 90th percentile; 0 sites above AL*			AL* = 15 parts per billion (ppb) at 90th percentile	0	No	Corrosion of household plumbing systems, erosion of natural deposits.
Nitrate/Nitrite	0.11	0	0.86	Nitrate = 10 parts per million Nitrite = 1 parts per million	10; 1	No	Naturally occurring, fertilizers, sewage treatment plants, erosion of natural deposits, leaching from septic tanks.
Total Organic Carbon***	2.2	1.2	3.2	Results are parts per million. MCL is TT*=percent removal	N/A	Yes	Naturally found in the environment.
Haloacetic Acids	21	8	31	60 parts per billion LRAA*. Level found is highest LRAA; Minimum and Maximum are from individual readings.	N/A	No	By-product of drinking water disinfection.
Total Trihalomethanes	47	21	54	80 parts per billion LRAA*. Level found is highest LRAA; Minimum and Maximum are from individual readings.	N/A	No	By-product of drinking water disinfection.
Atrazine	0.3	0.2	0.4	3 parts per billion	3	No	Runoff from herbicide used on row crops.
Arsenic	0.17	0	1.4	10 parts per billion	0	No	Erosion of natural deposits; runoff from orchards, runoff from glass & electronics production waste.

Secondary Contaminants	Average	Minimum	Maximum	Recommended Level (Non-Health Based Standards)	Likely Source of Contaminants
pH	N/A	7.4	8.7	Aesthetic level 6.5-8.5 s.u.*	Measure of acidity. Naturally present, adjusted in drinking water treatment.
Chloride	13	10	19	Aesthetic level 250 parts per million	Naturally present, brine from oilfield operations.
Sulfate	22	4.1	51	Aesthetic level 250 parts per million	Naturally present in the environment.

Other Required Monitoring	Average	Minimum	Maximum	Recommended Level	Likely Source of Contaminants
Sodium	10	7.7	13	Results are parts per million. Standard has not been established.	Naturally occurring, urban stormwater runoff or discharge from sewage treatment plants.
Cryptosporidium	Second round of monitoring (over 48 month duration) was completed in 2017. At the time of this report, official reporting calculations have not been finalized by the Oklahoma Deparment of Environmental Quality. Detections were found in source water only and were not detected at levels of concern; Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. 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. However, immuno-compromised people are at greater risk of developing life-threatening illness. We encourage immuno-compromised 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.				

ADDITIONAL MONITORING: Tulsa was required to participate in Unregulated Contaminant Monitoring (UCMR4) in 2018. Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. The following are those contaminants that were detected during UCMR4 monitoring.

****Some contaminants below have established standards, but were collected in conjunction with UCMR4 sampling requirements. Regular routine monitoring results for these contaminants are listed in the table above.

Unregulated Contaminants	Average (parts per billion)	Minimum (parts per billion)	Maximum (parts per billion)
Manganese	0.216	0	0.444
Monobromoacetic Acid	0.199	0	0.514
Bromochloroacetic Acid	4.23	1.43	8.57
Bromodichloroacetic Acid	4.50	1.22	8.93
Chlorodibromoacetic Acid	1.63	0.554	3.15
Dichloroacetic Acid****	8.01	3.61	13.0
Trichloroacetic Acid****	5.74	2.09	8.72
Dibromoacetic Acid****	1.31	0.396	2.81

Unregulated Contaminants	Average (parts per million)	Minimum (parts per million)	Maximum (parts per million)
Bromide	45.8	24.8	71.8
TOC****	3.08	2.11	4.32

Important Information About Your Drinking Water

Monitoring Requirements Not Met for Tulsa

Our water system violated drinking water requirements. Even though this was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct the situation.

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 your drinking water meets health standards. During the following monitoring periods, we did not complete all monitoring or testing for the following contaminants, and therefore cannot be sure of the quality of your drinking water during that time.

Type of Sample(s)	Monitoring Period(s)
TOTAL ORGANIC CARBON	6/1/2018 To 6/30/2018
TOTAL ORGANIC CARBON	6/1/2018 To 6/30/2018

What should I do? There is nothing you need to do at this time.

What happened? What is being done? In June 2018 the A.B. Jewell Water Treatment Plant failed to collect a "paired" sample set for total organic carbon (TOC). A "paired" sample set must be used for calculating the monthly TOC removal value. This paired set consists of samples analyzed for TOC at the source and at the point of combined filter effluent. It also consists of a sample analyzed for total alkalinity at the source. The appropriate number of samples were collected for the monitoring period, however the TOC sample collected at the combined filter effluent was not collected the same day as the source samples, which invalidated the samples. With this sample being invalidated, our system could not demonstrate the required treatment technique which is based on percent removal of TOC.

We anticipate resolving the problem by this date: Situation resolved; return to compliance July 2018.

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.

For more information, please contact Melissa Gray at 918-591-4384 or Water Quality Assurance, 4818 S. Elwood Ave, Tulsa, OK 74107

Date PN Distributed: June 2019

PWSID No.: OK1020418

County : TULSA

*TERMS AND ABBREVIATIONS

Some of the terms and abbreviations contained in this report are unique to the water industry and might not be familiar to all customers. Terms used in the table are explained below.

Maximum Contaminant Level (MCL): Highest level of a contaminant allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goal as feasible using the best available treatment technology.

Maximum Level Contaminant 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.

Action Level (AL): Concentration of a contaminant, that if exceeded, triggers treatment or other requirements that a water system must follow.

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

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

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

Locational Running Annual Average (LRAA): Average calculated at each monitoring location

Parts Per Million (ppm): Equivalent to milligrams per liter. One ppm is comparable to one drop of water in 55 gallons.

Parts per Billion (ppb): Equivalent to micrograms per liter. One ppb is comparable to one drop of water in 55,000 gallons.

Turbidity: A measure of suspended material in water. In the water field, a turbidity measurement is used to indicate clarity of water.

Nephelometric Turbidity Unit (NTU): a unit of turbidity measurement

Standard Unit (s.u.): a measurement of pH

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