TULSA'S 2021 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 33,000 samples in 2020 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 2020.

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.ok.gov/water-quality-division/watershed-planning.

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).

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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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. 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 Stefanie Hunter at (918) 596-8039.

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

Richard Sevenoaks, Chair

Lou Reynolds, Vice-Chair

Rick Hudson, Secretary

Jim Cameron

Jack Neely

Candice Cheeseman

Mayor G.T. Bynum

www.cityoftulsa.org/TMUA

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CITY OF TULSA 2020 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.

Regulated Contaminants	Level Found	Minimum	Maximum	Maximum Contaminant Level (MCL*)	MCLG*	Violation	Likely Source of Contaminants
Turbidity Level found			0.21	TT*=less than 0.3 NTU 95 percent of the time	N/A	No	Soil runoff.
Lowest monthly % meeting regs	100.0%						
Arsenic	0.19	0.00	1.52	10 parts per billion	0	No	Erosion of natural deposits, runoff from orchards, runoff from glass and electronics production wastes.
Barium	0.042	0.031	0.054	2 parts per million	2	No	Naturally present in the environment, drilling waste, metal refineries.
Total Chlorine	2.4	1.5	3.0	MRDL*=4.0 parts per million annual avg.	4	No	Water additive to control microbes.
Chlorite	0.42	0.28	0.67	1 part per million	0.8	No	By-product of drinking water disinfection.
Copper	0.346 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	0.69	0.32	0.85	4 parts per million	4	No	Erosion of natural deposits, water additive which promotes strong teeth, discharge from fertilizer and aluminum factories.
Lead	3.97 parts per billion (ppb) at the 90th percentile; 2 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 Total	0.69	0	2.2	Nitrate = 10 parts per million Nitrite = 1 parts per million Total =11 parts per million	10/1	No	Naturally occurring, fertilizers, sewage treatment plants, erosion of natural deposits, leaching from septic tanks.
Total Organic Carbon	1.9	0.8	3.3	Results are parts per million. MCL is TT*=percent removal	N/A	No	Naturally found in the environment.
Haloacetic Acids	28	5	38	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	40	24	50	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	0.2	0	0.3	3 parts per billion	3	No	Runoff from herbicide used on row crops.

Secondary Contaminants	Average	Minimum	Maximum	Recommended Level (Non-Health Based Standards)	Likely Source of Contaminants
pH	N/A	7.6	8.8	Aesthetic level 6.5-8.5 s.u.*	Measure of acidity. Naturally present, adjusted in drinking water treatment.
Chloride	12	9	17	Aesthetic level 250 parts per million	Naturally present, brine from oilfield operations.
Sulfate	21	4.5	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	7.3	14	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. 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

HOW TO READ TULSA'S WATER QUALITY REPORT

EPA has established National Primary Drinking Water Regulations (NPDWRs) that set mandatory water quality standards for drinking water contaminants. These are enforceable standards called "maximum contaminant levels" (MCLs) which are established to protect the public against consumption of drinking water contaminants that present a risk to human health.

Regulated Contaminants — The City of Tulsa tests for a total of 88 different regulated contaminants on a yearly basis — this includes more than 33,000 water quality tests performed in 2020. The City of Tulsa is required to report any detectable regulated contaminant, even if levels found were well below the maximum contaminant level. The attached table lists all regulated contaminants that were detected during water quality monitoring in 2020.

- To determine if a particular contaminant is present in your drinking water at a level that is near or exceeds federal or state guidelines; compare the level shown in the "Level Found" column to the level shown in the "Maximum Contaminant Level (MCL)" column.
- You can also compare the level found to the level shown in the 'Maximum Contaminant Level Goal (MCLG)' column. Keep in mind that the MCLG level is simply a target goal, not a requirement. Water utilities are currently required to keep contaminant levels below the MCL level, but not below the MCLG level.

Secondary Contaminants — In addition, EPA has established National Secondary Drinking Water Regulations (NSDWRs) that set non-mandatory water quality standards as guidelines for aesthetic considerations such as taste, color, and odor.

- To determine the level of a particular secondary contaminant in your drinking water, compare the 'Average' column to the 'Recommended Level' column.

Unregulated Contaminants — The City of Tulsa participates in Unregulated Contaminant Monitoring every four years. This monitoring helps advance the science of safe drinking water by testing water for contaminants that are not regulated by National Primary Drinking Water Regulations but are known or anticipated to occur at public water systems. This monitoring assists EPA in determining which contaminants may warrant monitoring under the Safe Drinking Water Act.

*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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