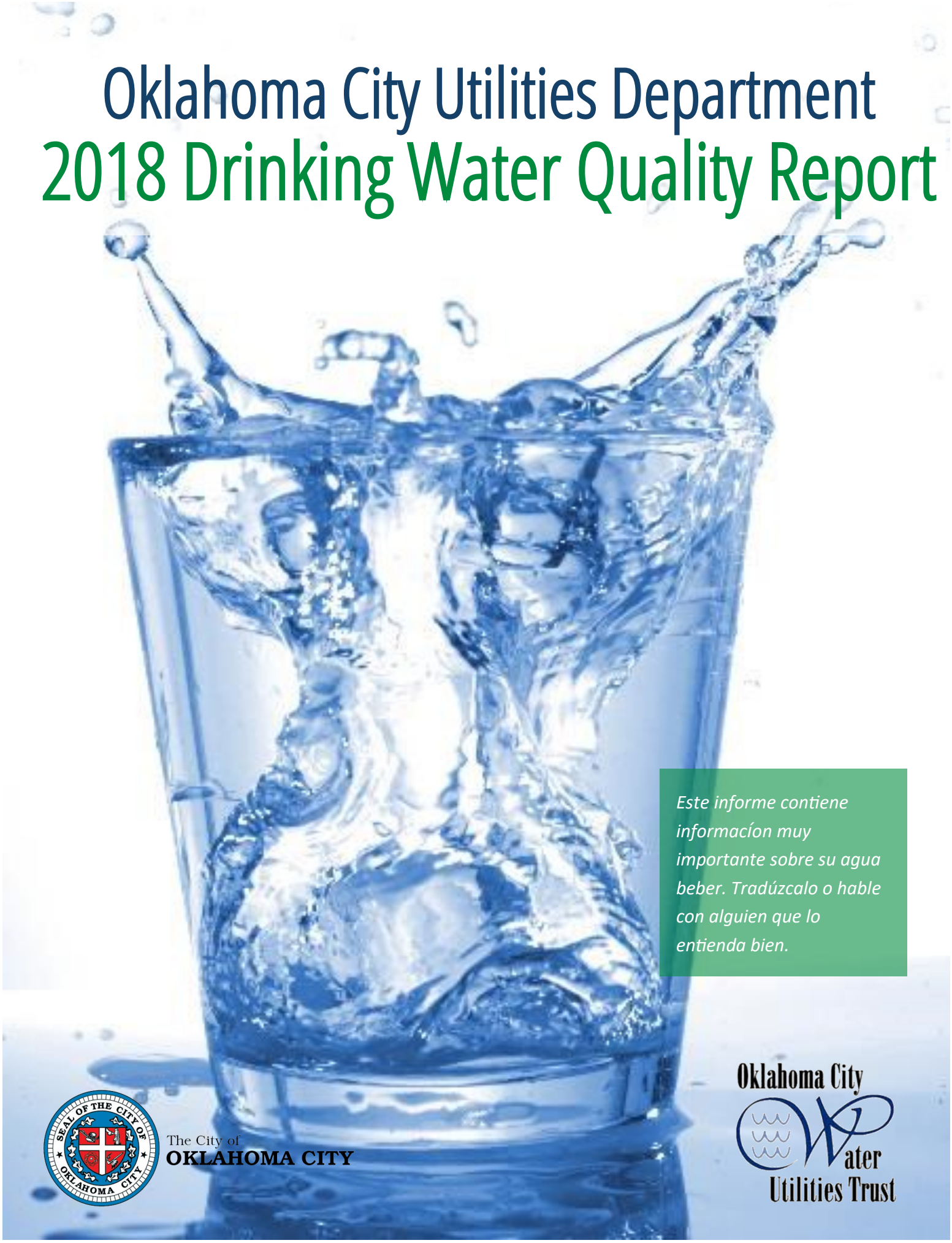
Oklahoma City Utilities Department

2018 Drinking Water Quality Report



Este informe contiene informacíon muy importante sobre su agua beber. Tradúzcalo o hable con alguien que lo entienda bien.

The City of
OKLAHOMA CITY

Oklahoma City
Water
Utilities Trust

Municipal tap water is a valuable resource for every community. It contributes to public health, drives business, keeps citizens safe from waterborne illness, and helps us in our daily lives.

The Oklahoma City Utilities Department is committed to providing clean, fresh drinking water to residents and visitors in the communities we serve. More than 1.3 million Oklahomans in 18 different communities receive drinking water through our retail and wholesale water programs. That's nearly one-third of the state's population.

Sourced from the Earth

Oklahoma City's water footprint spans 250 miles and includes seven surface water reservoirs from five Oklahoma counties. They include Canton Lake in northwest Oklahoma, McGee Creek, Lake Atoka and Sardis Lake in southeastern Oklahoma, as well as Lake Overholser, Lake Hefner and Lake Stanley Draper in Oklahoma City.

These reservoirs feed into our three water treatment plants, which treat the water we distribute to the communities we serve. They also provide many recreational opportunities to lake visitors, including boating, fishing and water skiing.

Raw water accumulates in reservoirs from spring and summer rains. As water travels over the ground, it can pick up naturally-occurring minerals found in rocks and soil, pesticides and herbicides used in farming, as well as bacteria from animal or human activity.

To ensure water is safe to drink, the Environmental Protection Agency (EPA) and Oklahoma Department of Environmental Quality (ODEQ) set regulations that limit the amounts of certain contaminants that can be in water provided by public utilities.

Raw water is processed at Oklahoma City's two water treatment plants, the Hefner Water Treatment Plant, and the Draper Water Treat Plant. Each plant treats the water in a slightly different way, based upon the raw water make-up and the technology available at each facility.

During treatment, certified water quality experts take lake water through an extensive treatment process to remove harmful bacteria and other contaminants. They then disinfect it by introducing a small amount of chlorine. Fluoride is also added to help prevent tooth decay.

Meeting the Test

Before water can be distributed, we test it to ensure it meets all regulatory standards of the U.S. Environmental Protection Agency (EPA) and Oklahoma Department of Environmental Quality (ODEQ).

We test the water at more than 240 approved sites throughout our distribution system. This helps us ensure the quality of the water at all points in the system, which includes more than 3,800 miles of pipeline. In 2018, water quality chemists and plant operators tested more than 205,000 individual water samples. Results are reported monthly to the ODEQ, and serve as independent quality control.

Test results are also included here, our annual Consumer Confidence Report (CCR), which is a requirement of the 1974 Safe Drinking Water Act.

In each case, Oklahoma City water meets or surpasses all regulatory requirements set forth by the EPA. Oklahoma City's CCR is included with this report, and can be found online at www.okc.gov/ccr. To receive the report by mail, call (405) 297-2833.

Oklahoma City Utilities - Water Quality Summary 2018

DETECTED CONTAMINANTS	UNITS	IDEAL GOAL (EPA'S MCLG)	HIGHEST LEVEL ALLOWED (EPA'S MCL)	HEFNER WTP PWS ID 1020902	DRAPER WTP PWS ID 1020902B	COMPLIANCE	MAJOR SOURCES IN DRINKING WATER
Inorganic Compounds							
Fluoride[1]	ppm	4	4	Average level detected in most recent testing - 2018: 0.63	0.69	YES	Added during treatment for dental health or dissolved from natural deposits
Lead	ppb	0	AL = 15	Most recent systemwide distribution testing: August 2018 - 90th Percentile = <1.0		All Sites < AL YES	Corrosion of household plumbing; erosion of natural deposits
Barium	ppm	2	2	Highest level, most recent testing - 2013: 0.052	0.057	YES	Discharge of Drilling Wastes; discharge from metal refineries; erosion of natural deposits
Copper	ppm	0	AL = 1.3	Most recent systemwide distribution testing: August 2018 - 90th Percentile = 0.191		All Sites < AL YES	Corrosion of household plumbing; erosion of natural deposits
Arsenic	ppb	0	10	Highest level, most recent testing - 2013: < 2	< 2	YES	Erosion of natural deposits; runoff from orchards; runoff from electronics and glass production wastes
Nitrate-Nitrite[2]	ppm	10	10	Highest level, most recent testing - 2018: 0.204	0.031	YES	Runoff from fertilizer; leaching from septic tanks, sewage or erosion of natural deposits
Radiological							
Gross Alpha	pCi/L	0	15	Highest level, most recent testing - 2018: < 3.00	< 3.00	YES	Decay of natural and man-made deposits
Gross Beta	pCi/L	0	50	6.75 ± 0.56	< 4.00		
Radium 226	pCi/L	0	5	< 1.00	< 1.00		
Radium 228	pCi/L	0	5	< 1.00	< 1.00		
Uranium	ppb	0	30	< 1.0	< 1.0		
Disinfection By-Products Stage 2 Rule Monitoring[3]							
Total Trihalomethanes[4]	ppb	0	80 (LRAA)	Most recent systemwide distribution testing 2017/2018; Highest Locational Running Annual Average (LRAA); 12716 NE 36th St (Draper) - 67.10; Range Detected: 9.95 - 67.10; Highest quarterly average (LRAA): 19.82	67.10	YES	By-product of drinking water disinfection
				Range detected: 6.59 - 28.11	47.90 - 73.71		
Haloacetic Acids[4]	ppb	0	60 (LRAA)	Most recent systemwide distribution testing 2017/2018; Highest Locational Running Annual Average (LRAA); 12716 NE 36th St (Draper) - 43.17; Range Detected: 4.64 - 43.17; Highest quarterly average (LRAA): 8.74	43.17	YES	By-product of drinking water disinfection
				Range detected: 4.51 - 13.85	23.24 - 44.43		
Bromate[5]	ppb	0	10 (RAA)	Highest quarterly average (RAA) - <5.10; Range detected - <5.00 - <5.10		YES	By-product of disinfection by ozone **Only Hefner Plant uses Ozone**
Precursor Removal							
Total Organic Carbon[6] **(TOC)**			TT = Ratio must be greater than or equal to 1.00 for compliance	Average of monthly ratios: 1.84	0.420	YES	Naturally occurring
				Monthly Ratio = (% TOC removed) divided by (% TOC removal required)			
Disinfection Residual							
Chloramines as Chlorine[7]	ppm	NA	MRDL 4.0	Average readings: 3.53	3.37	YES	Water additive used to control microbes
			Range detected	2.0 - 5.0	2.1 - 3.8		
Microbiological							
Coliform Bacteria	CFUs % positive	0	Presence of Coliform bacteria in <5% of samples	2018 System-wide distribution testing: Month having the highest % positive - September/October/December (Each month had 1 positive sample in 243 samples - 0.412 %)		YES	Naturally present in the environment
				Four positive Coliform results in 2638 samples (0.152 % occurrence)			
Clarity							
Turbidity[8]	NTU % > 0.3	NA	TT = > 0.3 NTU in not more than 5% of samples	Lowest monthly % of samples with < 0.3 NTU: 99.5%	99.5%	YES	Lime and/or calcium carbonate particles from softening efforts; soil runoff
				Highest single reading: 0.67	0.40		
Long Term 2 Enhanced Surface Water Treatment Rule							
Cryptosporidium[9]	cysts/L	0	NA	Most recent testing 2016-2017. Source water averages are <0.075 cysts/L, which is considered low risk category.		YES	Storm runoff, agricultural runoff and leaking sewage systems
Detected UCMR3 Analytes (2013)[10]							
				Average	**Range**		
Chlorate	ppb	NA	NA	36.4	<20.0 - 36.4	NA	By-product of drinking water disinfection, making of dyes, explosives, matches, printing fabrics, herbicides, antiseptics, toothpastes and in paper pulp processing.
Hexavalent Chromium	ppb	NA	NA	0.141	<0.030 - 0.391	NA	Naturally occurring. By-product of making steel and other alloys, plating, dyes and pigments, leather and wood preservation.
Total Chromium	ppb	100 (0.100 mg/L)	100 (0.100 mg/L)	0.428	<0.200 - 0.471	YES	Naturally occurring. By-product of making steel and other alloys, plating, dyes and pigments, leather and wood preservation.
Molybdenum	ppb	NA	NA	2.76	<1.00 - 3.24	NA	Naturally occurring. By-product of making steel and other alloys, lubricants, dyes and pigments, fertilizers.
Strontium	ppb	NA	NA	295	42.9 - 763	NA	Naturally occurring. By-product of making electronics and fireworks.
Vanadium	ppb	NA	NA	2.78	<0.200 - 7.50	NA	Naturally occurring. By-product of making steel alloys, chemical manufacturing, ceramics and batteries.

Definitions & Abbreviations Used in the Water Quality Summary

EPA – US Environmental Protection Agency
MCL – Maximum Contaminant Level is the highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG – Maximum Contaminant Level Goal is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow a margin of safety.
MRDL – Maximum Residual Disinfectant Level is the highest level of a disinfectant allowed in drinking water based on an annual average and does not apply to individual samples. There is convincing evidence that addition of a disinfectant is necessary to control microbial contaminants. Compliance with the MRDL is calculated as a Running Annual Average (RAA).
MRDLG – Maximum Residual Disinfectant Level Goal is 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 contamination.
RAA – Running Annual Average is the average of the last 12 months or last 4 quarters that the facility is in operation. Disinfectants and disinfectant by-products monitored in this way are Total Trihalomethanes, Haloacetic Acids, Bromate and Chloramines.
LRAA – Locational Running Annual Average is the average of the last 12 months or last 4 quarters for each identified monitoring location in the distribution system. This differs from past requirements, which determined compliance by calculating the RAA of samples from all monitoring locations across the distribution system. Total Trihalomethanes and Haloacetic Acids are monitored in this way.
AL – Action Level
TT – Treatment Technique - a required process intended to reduce the level of a contaminant in drinking water.
NTU – Nephelometric Turbidity Units (a measure of clarity)
pCi/L – picocuries per liter (a measure of radioactivity)
ppm – parts per million or milligrams per liter (mg/L)
ppb – part per billion or micrograms per liter (μg/L)
CFU – Colony Forming Units
< – less than > – greater than

Drinking Water Sources

The sources of drinking water nationwide include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or human activity. Drinking water (including bottled water) may reasonably be expected to contain at least small amounts of some substances. The presence of dissolved minerals does not necessarily indicate that water poses a health risk. The City of Oklahoma City treats and filters all water from reservoirs to remove any possible harmful contaminants according to State and Federal standards.

Contaminants that may be present in raw — or untreated — water include microbes (viruses and bacteria), inorganics (salts and metals), pesticides and herbicides (from various sources, including agriculture, storm water runoff and residential uses), and radioactive materials that are naturally occurring.

The Environmental Protection Agency limits the amount of contaminants in water provided by public systems to ensure tap water is safe to drink. The Food and Drug Administration regulations limit contaminants in bottled water in order to provide the same public health protection.

Some contaminants may cause color, taste or odor problems in water but are not necessarily causes for health concerns. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791 or at www.epa.gov/safewater.

People with Health Concerns

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 of infections. These people should seek advice about drinking water from their healthcare providers. The EPA and Centers for Disease Control guidelines on appropriate ways to lessen the risk of infection by Cryptosporidium (an intestinal parasite that can be fatal in some immune-compromised persons) and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Footnotes

Monitoring Frequency Note: The state has set forth enforceable regulations on how often contaminants must be monitored and tested. Some of our data, though representative, is more than one year old. ODEQ monitors and tests the following Inorganic Compounds and Radiological Compounds for Oklahoma City Utilities: Barium, Arsenic, Gross Alpha, Gross Beta, Radium 226 + 228 and Uranium.

Required Sampling Frequency:

Every 9 years - Fluoride, Barium and Arsenic
Every 6 years – Radionuclides
Every 3 years - Lead and Copper

1. Fluoride: Monitored every 12 hours at each WTP. The highest single reading for 2017 at each plant was below the MCL and considered a safe level.
Draper – Highest single reading = 0.85 ppm. Ave. fluoride concentration for 2017 = 0.69 ppm
Overholser – Highest single reading = 0.89 ppm. Ave. fluoride concentration for 2017 = 0.62 ppm
Hefner – Highest single reading = 0.95 ppm. Average fluoride concentration for 2017 = 0.65 ppm
2. Nitrate-Nitrite: Measured as the sum of Nitrate-N and Nitrite-N.
3. Disinfection By-Products Stage 2 Rule Monitoring: U.S. water utilities are required to continuously improve the quality of water delivered to customers. The Federal Environmental Protection Agency and the Oklahoma Department of Environmental Quality enforce drinking water laws and develop long-range improvement activities. In 2009, Oklahoma City collected information on how THMs and HAAs change in the water system and is working with EPA and DEQ to decrease the numbers.
4. Total Trihalomethanes and Haloacetic Acids: The MCL is based on the RAA; therefore, the MCL does not apply to individual samples that are allowed to be higher than the MCL.
5. Bromate: The MCL is based on the RAA; therefore, the MCL does not apply to individual samples that are allowed to be higher than the MCL. Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
6. Total Organic Carbon: Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection by-products. These by-products include Trihalomethanes (THMs) and Haloacetic Acids (HAAs). Drinking water containing these by-products in excess of the MCL (Maximum Contaminant Level) may lead to adverse health effects. TOC compliance is based on the percent TOC removed, not the total amount present. The starting TOC at the Draper Treatment facility is low; therefore, the potential for formation of THMs and HAAs due to TOC is low. The THM and HAA values for the Draper Treatment facility are below the LRAA MCL, which is currently considered a safe level for these disinfection by-products. Draper Treatment facility uses an alternative method (SUVA analysis) for meeting TOC removal criteria.
7. Chlorine: Compliance with the 4.0 mg/L MRDL is based upon an annual average; therefore, the MRDL does not apply to individual samples that are allowed to be higher than the MRDL.
8. Turbidity: Turbidity is a measure of the cloudiness or clarity of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
9. Cryptosporidium: Cryptosporidium is a microbial pathogen found in surface water throughout the United States. All source water samples collected for the City of Oklahoma City during 2017 were non-detect for this pathogen. Cryptosporidium is part of the Long Term 2 Enhanced Surface Water Treatment Rule and testing was required for a consecutive 24 months. Our testing was completed in December of 2017. Source water averages are <0.075 cysts/L, which are considered low risk category.
10. UCMR3: EPA uses the Unregulated Contaminant Monitoring (UCM) program to collect data for contaminants suspected to be present in drinking water, but that do not have health-based standards set under the Safe Drinking Water Act (SDWA). Every five years EPA reviews the list of contaminants, largely based on the Contaminant Candidate List. The SDWA Amendments of 1996 provide for:

- Monitoring no more than 30 contaminants every five years
- Monitoring only a representative sample of public water systems serving less than 10,000 people
- Storing analytical results in a National Contaminant Occurrence Database (NCOD).

UCMR3 is the third round of monitoring under the UCM Rule.

City of Oklahoma City

2017 Drinking Water Quality Report

For the testing period between January 1-December 31, 2017

HOW TO READ YOUR WATER QUALITY REPORT

The year(s) tests were conducted.

Below this level a contaminant has no known or expected health risks.

Highest amount of a contaminant EPA allows in drinking water.

How a contaminant ends up in Oklahoma City's drinking water.

Year Sampled	Contaminant	Highest Average	Range of Levels	MCLG	MCL	Units	Violation	Possible Source(s) of Contaminant
2016	Substance 1	0.05	0.02-0.11	2	4	ppm	N	Discharge of drilling wastes or metal refineries; erosion of natural deposits.
2016	Substance 2	2.4	0-3.4	No goal for the total	60	ppb	N	By-product of drinking water disinfection.

The amount from lowest to highest of a contaminant detected in Oklahoma City's drinking water.

Parts per billion—one ppb equals to one teaspoon in 1,302,000 gallons.

Parts per million - one ppm equals to one teaspoon in 1,302 gallons.

What is a Contaminant?

Put simply, a contaminant in water is anything other than hydrogen or oxygen, or H20, the two hydrogen atoms and one oxygen atom that make up one water molecule. Contaminants do not mean there is a health risk. They simply mean there is something else in the water besides the elements that make up the water.

Understanding the Tables

The following tables contain scientific terms and measures, some of which may require explanation.

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

Average: Regulatory compliance with some MCLs are based on running annual average monthly samples.

Erosion of natural deposits: This language is required in the "possible source of contaminant column" for contaminants that are naturally-occurring. Erosion of natural deposits actually means the substance is naturally-present in drinking water and was not added.

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.

NA: not applicable

ppb: micrograms per liter or parts per billion. One part per billion is the same as one ounce in 7,812,500 gallons of water, an order of magnitude smaller than one part per million.

ppm: milligrams per liter or parts per million. One part per million is the same as one ounce in 7,812.5 gallons of water.