

## **2016 ANNUAL DRINKING WATER REPORT**

### **City of Bristow**

We are pleased to provide you with the 2016 Annual Drinking Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). We want to keep you informed about the excellent water and services we have delivered to you over the 2016 calendar year. Our goal is and always has been, to provide to you a safe and dependable supply of drinking water. This report shows our water quality and how it compares to standards set by regulatory agencies.

Our water source is groundwater drawn from four wells. The wells are approximately 400 feet deep and produce from the Vamoosa-Ada aquifer.

This year we had two violations related to reporting and sampling and one notice of lead action level exceedance. The violations have been resolved and all sampling results are in compliance. I'm pleased to report that our drinking water meets Federal and State requirements.

If you have any questions about this report or concerning your water utility, please contact Troy Davidson at 918-277-6807. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the first and third Mondays of each month at 7:00 pm in the City Council Chambers at City Hall, 110 West Seventh Avenue, Bristow, Oklahoma.

The City of Bristow routinely monitors for contaminants in your drinking water according to Federal and State laws. This table shows the results of our monitoring for the period of January 1<sup>st</sup> to December 31<sup>st</sup>, 2016. (Some of our data may be more than one year old because the state allows us to monitor for some contaminants less often than once per year.) All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. It is important to remember that the presence of these contaminants does not necessarily pose a health risk.

#### **WATER QUALITY DATA TABLE**

The table below lists all of the drinking water contaminants we detected for the calendar year of this report. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report.

In this table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms, we've provided the following definitions:

- (a) Non-Detects (ND). Laboratory analysis indicates that the constituent is not present.
- (b) Parts per million (ppm). Milligrams per Liter (mg/L)
- (c) Parts per billion (ppb). Micrograms per Liter (ug/L)
- (d) Parts per trillion (ppt). Nanograms per Liter (ng/L)
- (e) Parts per quadrillion (ppq). Picograms per Liter (picograms/L)

- (f) Picocuries per Liter (pCi/L). A measure of the radioactivity in water.
- (g) Millirems per year (mrem/yr). A measure of radiation absorbed by the body.
- (h) Nephelometric Turbidity Unit (NTU). A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- (i) Action Level (AL). The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- (j) Treatment Technique (TT). A required process intended to reduce the level of a contaminant in drinking water.
- (k) 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.
- (l) 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.
- (m) Not Applicable (N/A). In this context, not applicable means that the category does not apply to the contaminant.

<b>WATER QUALITY DATA</b>						
<b>Contaminant</b>	<b>Violation Yes/ No</b>	<b>Highest Level Detected</b>	<b>Range Detected</b>	<b>MCL</b>	<b>MCLG</b>	<b>Likely Source of Contamination</b>
<b>Radiochemical Contaminants</b>						
1. Gross Beta (pCi/L)	No	6.34	1.8 - 6.34	50	0	Decay of natural and man-made deposits
2. Gross Alpha (pCi/L)	No	7.0	4.1 - 7.0	15	0	Erosion of natural deposits
3. Combined radium 226/ 228 (pCi/L)	No	4.59	0.274 - 4.59	5	0	Erosion of natural deposits
4. Uranium (pCi/L or ug/L)	No	13.6	4.11 – 13.6	30	0	Erosion of natural deposits
<b>Inorganic Contaminants</b>						
5. Fluoride (ppm)	No	0.14	N/A	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
6. Barium (ppm)	No	0.270	N/A	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
7. Chlorine (ppm)	No	1	1 - 1	4	4	Water additive used to control microbes
8. Nitrate – NO <sub>3</sub> (ppm as Nitrogen)	No	1.12	0 – 1.12	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural

WATER QUALITY DATA						
Contaminant	Violation Yes/ No	Highest Level Detected	Range Detected	MCL	MCLG	Likely Source of Contamination
						deposits
9. Total Trihalomethanes (TTHM) (ppb)	No	9.12	N/A	80	N/A	By-product of drinking water chlorination

Contaminant	Violation Yes/ No	90 <sup>th</sup> Percentile Level	Range Detected	Sites over Action Limit	AL	MCLG	Likely Source of Contamination
<b>Inorganic Contaminants</b>							
10. Copper (ppm)	No	0.084	ND - 0.087	0 out of 36	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
11. Lead (ppb)	No	46*	ND - 49	6 out of 40	15	0	Corrosion of household plumbing systems; erosion of natural deposits
Lead: If lab result shows that 90 <sup>th</sup> percentile of the sample is less than 0.005 mg/L (or 5ug/L), then it is considered a Non-Detect (ND).							

\*Lead value is reported as the 90<sup>th</sup> percentile value, as required by EPA documentation. This means that 90 percent of samples were at or below the 90<sup>th</sup> percentile level of 46 ppm.

**Radiochemical Contaminants:**

- (1.) Gross Beta. Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
- (2.) Gross Alpha. Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
- (3.) Combined radium 226/228. Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
- (4.) Uranium. Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.

**Inorganic Contaminants:**

- (5.) Fluoride. Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/ or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.

(6.) Barium. Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

(7.) Chlorine. Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

(8.) Nitrate. Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

(9.) Total Trihalomethanes. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

(10.) Copper. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson’s disease should consult their personal doctor.

(11.) Lead. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

<b>VIOLATIONS</b>			
<b>Violation Type</b>	<b>Violation Begin</b>	<b>Violation End</b>	<b>Violation Explanation</b>
<b>Consumer Confidence Rule</b>			
CCR Report	07/01/2016	03/03/2017	<ul style="list-style-type: none"> <li>– The Consumer Confidence Rule requires community water systems to prepare and provide to their customers annual consumer confidence reports on the quality of the water delivered by the systems.</li> <li>– We failed to provide to you, our drinking water customers, an annual report that informs you about the quality of our drinking water and characterizes the risks from exposure to contaminants detected in our drinking water.</li> </ul>
<b>E. Coli</b>			
Monitor Groundwater Triggered/ Additional, Minor	08/20/2014	2016	<ul style="list-style-type: none"> <li>– Fecal Coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely-compromised immune systems.</li> <li>– We failed to collect all the required follow-up samples within 24 hours of learning of the total coliform-positive sample. These needed to be tested for fecal indicators</li> </ul>

VIOLATIONS			
Violation Type	Violation Begin	Violation End	Violation Explanation
			from all sources that were being used at the time the positive sample was collected.

Additional Information on the CCR Violation: This violation occurred when the 2015 CCR was not completed and distributed to drinking water customers. The 2015 CCR was distributed in March of 2017 via a website link sent out to drinking water customers on their billing statements. The 2015 CCR is posted on [www.cityofbristow.org](http://www.cityofbristow.org) on the Water Department web page. By distributing the 2015 CCR and notifying DEQ, we are no longer in violation.

Additional Information on the E. Coli Violation: This violation occurred when follow-up sampling was not conducted for E. Coli in August of 2014. The corrective samples were taken the following month. Since this violation, sampling procedures have been compliant with Federal and State requirements and we are no longer in violation.

Additional Information on Lead Levels: The 90<sup>th</sup> percentile of sampling site lead levels exceeded the Action Level of 15 ppb. Enforcement action was taken by ODEQ by sending notification of the Lead Action Level Exceedance to the City on 07/12/2016. We have addressed the notice of exceedance by: a) increasing the monitoring frequency for lead at groundwater source wells and residential sampling sites, b) hiring an engineering company to oversee follow-up sampling, c) hiring an engineering company to design the chemical feed system of corrosion control to our groundwater wells, and d) replacing lead-containing water service lines as they are identified by the Bristow Municipal Authority. Over recent years, a substantial number of lead-containing water service lines have been replaced. Sampling results since this Notice of Exceedance have been compliant with all Federal and State requirements.

Additional Information on Lead: Infants and young children are typically more vulnerable to lead in drinking water than the general population. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Bristow Municipal Authority is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water for drinking or cooking. Lead in drinking water is rarely the sole cause of lead poisoning, but it can add to a person's total lead exposure. All potential sources of lead in the household should be identified and removed, replaced or reduced. Additional information is available from the Safe Drinking Water Hotline (1-800-426-4791) or a <http://www.epa.gov/safewater/lead>.

Additional Information on Total Coliform: The Revised Total Coliform Rule requires water systems to meet a stricter limit for coliform bacteria. Coliform bacteria are usually harmless, but their presence in water can be an indication of disease-causing bacteria. When coliform bacteria are found, special follow-up tests are done to determine if harmful bacteria are present in the water supply. If this limit is exceeded,

the water supplier must notify the public by newspaper, television or radio. Since 2014, we have increased the average amount of chlorine in the distribution system to comply with the stricter regulation.

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 can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water before we treat it include:

- (a) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- (b) 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.
- (c) Pesticides and herbicides, which may come from a variety of sources such as agriculture and residential uses.
- (d) Radioactive contaminants, which are naturally occurring.
- (e) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. MCLs are set at very stringent levels. To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a significant increased risk of having the described health effect. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. 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 microbiological contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

In our continuing efforts to maintain a safe and dependable water supply it may be necessary to make improvements in your water system. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements.

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply, we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments. Thank you for understanding.

Please call our office if you have any questions. We at City of Bristow work around the clock to provide top quality water to every tap, so that every resident can enjoy clean and ample amounts of drinking water.

Troy Davidson  
City of Bristow  
Water Department

A handwritten signature in blue ink that reads "Troy Davidson". The signature is written in a cursive style with a large initial "T" and "D".

This report is being sent to you by the City of Bristow, PWSID No. 2001910.

For further information, contact:

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Signed: Troy Davidson