Annual Drinking Water Quality Report
Ray, North Dakota
2018

We're very pleased to provide you with this year's Annual Drinking Water Quality Report. We want to keep you informed about the excellent water and services we have delivered to you over the past year. Our goal is to provide you with a safe and dependable supply of drinking water. The City of Ray purchases water from R and T Water Supply Association. R and T Water Supply Association's water source is a combination of ground water from the Ray Aquifer, and surface water from Western Area Water Supply Authority (WAWSA). The water is treated using the lime softening process. Chlorine is added for disinfection. They also add phosphate for corrosion control and fluoride.

The City of Ray is participating in North Dakota's Wellhead Protection Program. Copies of the Wellhead Protection Program plan and other relevant information regarding this program can be obtained during normal office hours. The North Dakota Department of Health has prepared a Source Water Assessment for the City of Ray. Information on this program is available at the office.

Our public water system, in cooperation with the North Dakota Department of Health, has completed the delineation and contaminant/land use inventory elements of the North Dakota Source Water Protection Program. Based on the information from these elements, the North Dakota Department of Health has determined that our source water is not likely susceptible to potential contaminants. No significant sources of contamination have been identified.

This report shows our water quality and what it means. If you have any questions about this report or concerning your water utility, please contact Ronda Rustad, Auditor, at 701-568-2204. 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 2nd Mondays of every month at 7:00 pm, at Ray City Hall. If you are aware of non-English speaking individuals who need help with the appropriate language translation, please call Ronda at the number listed above.

The City of Ray would appreciate it if large volume water customers would please post copies of this Annual Drinking Water Quality Report in conspicuous locations or distribute them to tenants, residents, patients, students, and/or employees, so individuals who consume the water, but do not receive a water bill can learn about our water system.

The City of Ray routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table shows the results of our monitoring for the period of January 1st to December 31st, 2017. As authorized and approved by EPA, the state has reduced monitoring requirements for certain contaminants to less often than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of our data, though representative, is more than one year old.

The sources of drinking water (both tap 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 include:

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

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

***Pesticides and herbicides*,** which come from a variety of sources such as agriculture, urban storm water runoff and residential uses.

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 storm water runoff and septic systems.

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

In order to ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

In the following 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:

Not Applicable (NA) No Detect (ND)

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter (µg/l) - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Picocuries per liter (pCi/L) - Picocuries per liter is a measure of the radioactivity in water.

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

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is 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 - The "Goal" (MCLG) is 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.

Obsvns-Field at 100 power.

IDSE-Initial distribution System Evaluation

2018 TEST RESULTS FOR THE CITY OF RAY, R&T WATER SUPPLY AND THE CITY OF WILLISTON

Contaminant	MCLG	MCL	Level Detected	Units	Range	Date (year)	Violation Yes/No Other Info	Likely Source of Contamination
Lead/Copper -Ray								
Copper	1.3	AL=1.3	0.0374 90th % Value	ppm	NA	2017	0 Sites Exceeded AL	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead**	0	AL=15	No Detect 90th % Value	ppb	NA	2017	0 Sites Exceeded AL	Corrosion of household plumbing systems, erosion of natural deposits

Disinfectants -Ray								
Chloramine	MRDLG =4	MRDL =4.0	2.7	ppm	2.02-2.96	2018	No	Water additive used to control microbes
Stage 2 Disinfection By-Products - Ray								
HAA5	NA	60	6	ppb	2.56-12.63	2018	No	By-product of drinking water chlorination
TTHM	NA	80	9	ppb	2.19-17.54	2018	No	By-product of drinking water chlorination

Microbiological Contaminants -Williston								
Turbidity*	NA	TT	0.094	NTU	N/A	2018	100% of samples met turbidity limits	Soil runoff
Inorganic Contaminants-Williston								
BARIUM	2	2	0.0143	Ppm	NA	2016	No	Erosion of natural deposits, discharge of drilling wastes
CHROMIUM	100	100	1.17	Ppb	NA	2016	No	Discharge from steel and pulp mills: erosion of natural deposits
FLUORIDE	4	4	0.81	Ppm	NA	2016	No	Erosion of natural deposits, water additive which promotes strong teeth
Nitrate-Nitrite (as Nitrogen)	10	10	0.2	ppm	NA	2018	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
SELENIUM	50	50	1.44	ppb	NA	2016	No	Erosion of natural deposits, discharge from petroleum and metal refineries.
TOTAL ORGANIC CARBON REMOVAL (WILLISTON)								
Alkalinity, Source-Williston	NA	NA	169	mg/l	105.00-169.00	2018	No	Natural erosion, certain plant activities, certain industrial wastewater discharges
Carbon, Total Organic (TOC) – Finished-Williston	NA	TT	3.8	MG/L	1.80-3.80	2018	No	Naturally present in the environment
Carbon, Total Organic (TOC)- Source- Williston	NA	TT	7	MG/L	3.30-7.00	2018	No	Naturally present in the environment
Inorganic Contaminants-R & T Water System								
ARSENIC	0	10	1.31	Ppb	NA	2016	No	Erosion of natural deposits
BARIUM	2	2	0.00374	Ppm	NA	2016	No	Erosion of natural deposits, discharge of drilling wastes
FLUORIDE	4	4	0.71	Ppm	NA	2016	No	Erosion of natural deposits, water additive which promotes strong teeth
Nitrate-Nitrite (as Nitrogen)	10	10	0.32	ppm	NA	2018	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Radioactive Contaminants- Williston								
Gross Alpha, Including RA, Excluding RN and U	15	15	3.9	ppb	NA	2017	No	Erosion of natural deposits
Radium, Combined (226, 228)	NA	5	0.78	pCi/1	NA	2017	No	Erosion of natural deposits
Uranium, Combined	NA	30	ND	ppb	-0.44 to 0	2017	No	Erosion of natural deposits
Radioactive Contaminants- R & T								
Gross Alpha, Including RA, Excluding RN and U	15	15	ND	ppb	NA	2017	No	Erosion of natural deposits
Radium, Combined (226, 228)	NA	5	1.21	pCi/1	NA	2017	No	Erosion of natural deposits
Uranium, Combined	NA	30	0.47	ppb	NA	2017	No	Erosion of natural deposits
Synthetic Organic Contaminants including Pesticides and Herbicides								
Pentachlorophenol	0	1	0.03	ppb	NA	2017	No	Discharge from wood preserving factories

Surface Water Treatment Rule Monitoring Data:

Lowest Monthly Percentage of Samples Meeting Turbidity Limits= 100
Highest Single Measurement = 0.094

*Turbidity is a measure of the cloudiness of the water. The city of Williston monitors it because it is a good indicator of the effectiveness of their filtration system. Turbidity is measured every four hours during treatment plant operations. 100% of samples met turbidity limits.

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 effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

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/Centers for Disease Control and Prevention (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).

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 Ray is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. **Use water from the cold tap for drinking and cooking. 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**

2 minutes before using water for drinking or cooking. If you are concerned about lead in your drinking 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 at http://www.epa.gov/safewater/lead.

The City of Ray works diligently to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future. Please call Ronda at 701-568-2204 if you have questions.