

2018

ANNUAL DRINKING WATER QUALITY REPORT



ALL SEASONS WATER USERS DISTRICT

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We're pleased to present to you this year's **Annual Drinking Water Quality Report**. This report is designed to inform you about the safe, clean water that we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water.

All Seasons Water Users District water sources are:

- For System I, our water source is two wells that are located west of Bottineau in an undifferentiated glacial drift aquifer. The water is pumped from the wells to an iron and manganese removal treatment plant located northwest of Bottineau. Polyphosphates are added to reduce lead and copper levels in the private homes, chlorine is then added for disinfection.
- For System III, we purchase our water from NAWS (Northwest Area Water Supply), which currently purchases the water from the City of Minot. The water is treated groundwater taken from wells consisting of two sources: The Sundre Aquifer and the Minot Aquifer. The processing of the water from Minot's water treatment plant is accomplished by a lime softening and filtering process.
- For System IV, our water source is five wells in the Shell Valley aquifer. The water is pumped from the wells to an iron and manganese removal treatment plant located north of Rolette. Phosphates and polyphosphates are added to reduce lead and copper levels in private homes; chlorine is then added for disinfection.
- For System V, we purchase our water from the City of Rugby, which is treated ground water taken from wells in the Pleasant Lake Aquifer, located approximately 8 miles East of the City of Rugby and the Rugby Aquifer, located approximately 4 miles East of the City of Rugby, and is delivered through a pipeline to the Rugby Water Treatment Plant located at 211 - 4th Ave. NW. The processing of the water from the Water Treatment Plant is accomplished by a lime softening and filtering process that treats 1,250 gallons a minute.

The City of Rugby has instituted a well head protection plan for the area around the Pleasant Lake Aquifer well site, within the limitations of the law and property rights. The City of Rugby has 8 wells. These wells are located outside the jurisdictional limits of the city and cannot be protected in the same manner as if they were located within the City Limits.

The areas surrounding the well sites are farming interests. Landowners that surround the well sites have been contacted in an effort to reduce the possibilities of contamination of the ground water aquifers. Further efforts to help alleviate the threats to ground water contamination are continuing, by meeting with these people and helping, when possible, with problems that may appear.

Land that the City of Rugby does control surrounding the wells is fenced and access is controlled by locked gates that only City employees have keys for. The well houses have locks that are secured at all times. Oil, gas, and other fuel leaks are prevented by periodic checks and the restricted access to the grounds. Chemical spraying of the area is not allowed because of the ongoing testing of biological control measures.

All Seasons Water Users is participating in the North Dakota Wellhead Protection Program. The North Dakota Dept. of Health has completed a source water assessment for All Seasons Water Users and has determined that based on the information from delineation of wellhead protection areas and potential contaminant/land use inventories, our water source has been determined to be not likely susceptible to potential contaminants. Information on these programs is available to the public at the All Seasons Water Users District office.

Dan Schaefer, Manager of All Seasons Water Users, is pleased to report that our drinking water is safe and meets federal and state requirements.

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 Dan Schaefer at 228-3663. 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 second Monday of the month, 7:30 P.M. at the All Seasons Water office on Hwy. 5, west of Bottineau. If you are aware of non-English speaking individuals who need help with the appropriate language translation, please call Dan Schaefer at the number listed above.

All Seasons Water Users would appreciate it if large volume water customers 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.

All Seasons Water Users 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, 2018. 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 [e.g., for inorganic contaminants], though representative, is more than one year old.

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. A copy of the Source Water Assessment Report is available for review in the office of All Seasons Water Users District.

Contaminants that may be present in source water:

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 stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which come from a variety of sources such as agriculture, urban stormwater 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 stormwater 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 Environmental Protection Agency (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:

(MCLG) Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

(MCL) Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

(MRDLG) Maximum Residual Disinfectant Level Goal: 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.

(MRDL) Maximum Residual Disinfectant Level: 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.

Highest Compliance Level: The highest level of that contaminant used to determine compliance with a National Primary Drinking Water Regulation.

Range of Detections: The lowest to the highest result value recorded during the required monitoring timeframe for systems with multiple entry points.

Abbreviations: ppb - parts per billion or micrograms per liter; ppm - parts per million or milligrams per liter; ppt - parts per trillion or nanograms per liter; ppq - parts per quadrillion or picograms per liter; N/A - not applicable; ND - none detected; pCi/L - picocuries per liter (a measure of radioactivity), umho/cm - micromhos per centimeter (a measure of conductivity); obsvns - observations/field at 100 Power; IDSE - Initial Distribution System Evaluation.

2018 TEST RESULTS - SYSTEM I

Contaminant	Violation Yes/No	Highest Compliance Level	Range Of Detection	Date (Year)	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Inorganic Contaminants								
1. Copper	Yes	1.5 90 th %	N/A	2018	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
2. Lead	No	2.00 90 th %	N/A	2018	ppb	15	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
3. Barium	No	0.15	N/A	2017	ppm	2	2	Discharge of drilling wastes, discharge from metal refineries, erosion of natural deposits
4. Chromium	No	3.93	N/A	2017	ppb	100	100	Discharge from steel and pulp mills, erosion of natural deposits
5. Flouride	No	0.123	N/A	2017	ppm	4	4	Erosion of natural deposits, water additive which promotes strong teeth, discharge from fertilizer or aluminum factories
Disinfection By-products								
6. Haloacetic Acids (HAA5)	No	21	1.12 to 21.48	2018	ppb		60	By-product of drinking water disinfection
7. Trihalomethanes (TTHM)	No	108	54.11 to 107.6	2018	ppb		80	By-product of drinking water chlorination
Disinfectants								
8. Chloramine	No	1.6	0.36 to 3.5	2018	ppm	MRDLG =4	MRDL =4	Water additive used to control microbes
Radioactive Contaminants								
9. Gross Alpha, including RA, excluding RN & U	No	6.77	N/A	2017	pCi/L	15	15	Erosion of natural deposits
10. Radium, combined (226, 228)	No	0.86	N/A	2017	pCi/L		5	Erosion of natural deposits
11. Uranium, combined	No	6.36	N/A	2017	ppb		30	Erosion of natural deposits

2018 TEST RESULTS - SYSTEM I (cont.)

Contaminant	Violation Yes/No	Highest Compliance Level	Range	Date (Year)	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Unregulated Contaminants								
12. Alkalinity, Total	No	507	504-507	2018	ppm			
13. Bicarbonate as HCO ₃	No	619	504-507	2018	ppm			
14. Calcium	No	94.6	90.5- 94.6	2018	ppm			
15. Conductivity @ 25 C UMHOS/CM	No	1200	1190-1200	2018	umho/cm			
16. Hardness, Total (AS COC03)	No	316	N/A	2017	ppm			
17. Magnesium	No	32.9	N/A	2017	ppm			
18. Manganese	No	0.035	N/A	2018	ppm			
19. Nickel	No	0.00282	N/A	2017	ppm			
20. Orthophosphate	No	0.067	0.019-0.067	2018	ppm			
21. pH	No	8.01	7.89-8.01	2018	pH			
22. Potassium	No	6	N/A	2017	ppm			
23. Sodium	No	145	N/A	2017	ppm			
24. Sodium Adsorption Ratio	No	3.55	N/A	2017	obsvns			
25. Sulfate	No	114	112-114	2017	ppm			
26. TDS	No	744	738-744	2018	ppm			
27. Zinc	No	0.00183	N/A	2017	ppm			

* No sites exceeded the copper action level in 2015.

** No sites exceeded the lead action level in 2015.

2018 TEST RESULTS - SYSTEM III

Contaminant	Violation Yes/No	Highest Compliance Level	Range	Date (Year)	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Inorganic Contaminants								
1. Copper	No	0.0703 90 th %	N/A	2018	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
2. Lead	Yes	5.18 90 th %	N/A	2018	ppb	15	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
3. Nitrate-Nitrite	No	0.06	N/A	2018	ppm	10	10	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits
4. Arsenic	No	1.74	N/A	2016	ppb	0	10	Erosion of natural deposits, runoff from orchards, runoff from glass and electronics production waste
5. Barium	No	0.00433	N/A	2016	ppm	2	2	Discharge of drilling wastes, discharge from metal refineries, erosion of natural deposits
6. Flouride	No	0.72	N/A	2016	ppm	4	4	Erosion of natural deposits, water additive which promotes strong teeth, discharge from fertilizer or aluminum factories
7. Selenium	No	1.65	N/A	2016	ppb	50	50	Discharge from petroleum and metal refineries, erosion of natural deposits, discharge from mines
8. Chromium	No	1.37	N/A	2016	ppb	100	100	Discharge from steel and pulp mills, erosion of natural deposits

2018 TEST RESULTS - SYSTEM III (cont.)

Contaminant	Violation Yes/No	Highest Compliance Level	Range	Date (Year)	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Disinfectants								
9. Chloramine	No	2.6	2.08 to 3	2018t	ppm	MRDLG =4	MRDL =4	Water additive used to control microbes
Disinfection By-products								
10. HAA5	No	17	17.27 to 17.43	2018	ppb		60	Water additive used to control microbes
11. TTHM	No	41	38.23 to 40.73	2018	ppb		80	Water additive used to control microbes
Unregulated Contaminants								
		Minimum Reporting Level, (ug/l)			Average value at raw water intake-common header, (ug/l)			
12. Bromide, as Br-(Unfiltered)		20			470 (Range: 410 to 530)			
13. TTHM		1000			4100 (Range: 4000 to 4200)			
Unregulated Contaminants								
		Minimum Reporting Level (ug/l)	Stage 2 Site #1	Stage 2 Site #2	Stage 2, Site #3	Stage 2, Site #4		
14. Bromochloroacetic acid		0.30	5.4 (Range: 5.1-5.6)	4.9 (Range: 4.7-5.1)	5.2 (Range: 4.9-5.4)	5.8 (Range: 5.7-5.8)		
15. Bromochloroacetic acid		0.50	5.7 (Range: 5.4-6.0)	6.6 (Range: 6.0-7.2)	5.9 (Range: 5.3-6.5)	5.9 (Range: 5.5-6.2)		
16. Chlorodibromoacetic acid		0.30	1.9 (Range: 1.7-2.0)	1.9 (Range: 1.7-2.0)	1.9 (Range: 1.8-2.0)	2.2 (Range: 1.9-2.5)		
17. Monobromoacetic acid		0.30	1.3 (Range: 1.1-1.4)	1.1 (Range: 5.1-5.6)	1.0 (Range: 0.9-1.2)	1.2 (Range: 0.8-1.7)		
18. Dibromoacetic acid		0.30	8.2 (Range: 7.4-9.0)	8.0 (Range: 0.9-1.3)	7.6 (Range: 6.7-8.4)	8.6 (Range: 8.0-9.2)		
19. Dichloroacetic acid		0.30	3.3 (Range: 3.0-3.5)	2.9 (Range: 2.8-2.9)	3.4 (Range: 3.3-3.4)	3.7 (Range: 3.7-3.7)		
20. Trichloroacetic acid		0.30	0.8 (Range: 0.7-.09)	0.8 (Range: 0.7-.09)	0.8 (Range: 0.8-0.9)	0.9 (Range: 0.7-1.0)		

* No sites exceeded the copper action level in 2017.

2018 TEST RESULTS - SYSTEM IV

Contaminant	Violation Yes/No	Highest Compliance Level	Range	Date (Year)	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Disinfectants								
1. Chlorine	No	1.1	0.48 -1.65	2017	ppm	4	4	By-product of drinking water disinfection
Inorganic Contaminants								
2. Copper	No*	1.02 90th%	N/A	2017	ppm		AL=1.3	Corrosion of household plumbing systems, erosion of natural deposits
3. Lead	No**	2.06 90th%	N/A	2017	ppb		AL=15	Corrosion of household plumbing systems, erosion of natural deposits
4. Nitrate-Nitrite	No	1.9	N/A	2018	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposit
5. Arsenic	No	1.39	N/A	2016	ppb	0	10	Erosion of natural deposits. Runoff from orchards; runoff from glass and electronics production wastes

2018 TEST RESULTS - SYSTEM IV (cont.)

Contaminant	Violation Yes/No	Highest Compliance Level	Range	Date (Year)	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Disinfectants								
6. Barium	No	0.0594	N/A	2017	ppm	2	2	Discharge of drilling wastes, discharge from metal refineries, erosion of natural deposits
7. Chromium	No	2.48	N/A	2017	ppb	100	100	Discharge from steel and pulp mills, erosion of natural deposits
8. Flouride	No	0.136	N/A	2017	ppm	4	4	Erosion of natural deposits, water additive which promotes strong teeth, discharge from fertilizer or aluminum factories
Stage 2 Disinfection By-products (TTHM/HAA5)								
9. Haloacetic Acids (HAA5)	No	7	N/A	2018	pCi/L		60	By-product of drinking water disinfection
10. TTHM	No	28	N/A	2018	pCi/L		80	By-product of drinking water disinfection
Radioactive Contaminants								
11. Gross Alpha, including RA, excluding RN & U	No	0.61	N/A	2015	pCi/L	15	15	Erosion of natural deposits
12. Radium, combined (226, 228)	No	0.92	N/A	2015	pCi/L		5	Erosion of natural deposits
13. Uranium, combined	No	4.55	N/A	2015	ppb		30	Erosion of natural deposits

* No sites exceeded the copper action level in 2017.

** No sites exceeded the lead action level in 2017.

2018 TEST RESULTS - SYSTEM V

Contaminant	Violation Yes/No	Highest Compliance Level	Range	Date (Year)	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Inorganic Contaminants								
1. Nitrate-Nitrite	No	0.13	N/A	2017	ppm	10	10	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits
2. Copper	No*	0.248 90th%	N/A	2017	ppm		AL=1.3	Corrosion of household plumbing systems, erosion of natural deposits, leaching from wood preservatives
3. Lead	No**	No Detect 90 th %	N/A	2017	ppb		AL=15	Corrosion of household plumbing systems, erosion of natural deposits
4. Arsenic	No	3.46		2016	ppb			Erosion of natural deposits, runoff from orchards, runoff from glass and electronics production wastes
5. Barium	No	0.00874	N/A	2017	ppm	2	2	Discharge of drilling wastes, discharge from metal refineries, erosion of natural deposits
6. Chromium	No	1.87	N/A	2017	ppb	100	100	Discharge from steel and pulp mills, erosion of natural deposits
7. Flouride	No	0.756	N/A	2017	ppm	4	4	Erosion of natural deposits, water additive which promotes strong teeth, discharge from fertilizer or aluminum factories

2018 TEST RESULTS - SYSTEM V (cont.)

Contaminant	Violation Yes/No	Highest Compliance Level	Range	Date (Year)	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Radioactive Contaminants								
8. Gross Alpha, including RA, excluding RN & U	No	4.14	N/A	2017	pCi/L	15	15	Erosion of natural deposits
9. Radium, combined (226, 228)	No	ND	-0.19 to 0	2017	pCi/L		5	Erosion of natural deposits
10. Uranium	No	1.85	N/A	2017	ppb		30	Erosion of natural deposits
Disinfection By-products								
11. Haloacetic Acids (HAA5)	No	16	N/A	2018	ppb		60	By-product of drinking water disinfection
12. Trihalomethanes (TTHM)	No	48	N/A	2018	ppb		80	By-product of drinking water disinfection
Disinfectants								
13. Chlorine	No	1.4	0.93 to 1.66	2018	ppm	MRDLG =4	MRDL =4	Water additive used to control microbes
Unregulated Contaminants								
14. Alkalinity, Carbonate	No	16	2 to 16	2017	ppm			
15. Alkalinity, Total	No	137	123 to 137	2017	ppm			
16. Bicarbonate as HCO ₃	No	146	135 to 146	2017	ppm			
17. Calcium	No	19.2	16.9 to 19.2	2017	ppm			
18. Chloride	No	10.8	N/A	2017	ppm			
19. Conductivity at 25 C UMHOS/CM	No	406	376 to 406	2017	umho/cm			
20. Hardness, Total (as CaCO ₃)	No	105	104 to 105	2017	ppm			
21. Magnesium	No	15.2	13.5 to 15.2	2017	ppm			
22. Manganese	No	0.012	ND to 0.012	2017	ppm			
23. pH	No	9.03	8.4 to 9.03	2017	pH			
24. Potassium	No	5.5	4.7 to 5.5	2017	ppm			
25. Sodium	No	44.1	33.9 to 44.1	2017	ppm			
26. Sodium Adsorption Ratio	No	1.87	1.45 to 1.87	2017	obsvns			
27. Sulfate	No	59.3	54.1 to 59.3	2017	ppm			
28. TDS	No	234	211 to 234	2017	ppm			

*No sites exceeded the copper action level in 2014.

**No sites exceeded the lead action level in 2014.

EPA requires monitoring of over 80 drinking water contaminants. Those contaminants listed in the table above are the only contaminants detected in your drinking water.

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.

We have learned through our monitoring and testing that some contaminants have been detected. The EPA has determined that your water IS SAFE at these levels.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short period 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.

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 the 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 (1-800-426-4791).

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 one-in-a-million chance of having the described health effect.

Thank you for allowing us to provide your family with clean, quality water this year. We have done recent system improvements so we can maintain a safe and dependable water supply to all of our customers.

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. All Seasons Water Users District 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 or at <http://www.epa.gov/safewater/lead>.

Please call our office at (701) 228-3663 or 1(888) 647-4330, if you have questions. All Seasons Water Users District works diligently around the clock 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 system, our way of life and our children's future.

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USDA, RURAL DEVELOPMENT

