

Lyon & Sioux Rural Water System, Inc.

2023 Water Quality Report – Reporting for 2022

We are pleased to provide you with this year's Annual Water Quality Report as required by the Safe Drinking Water Act (SDWA). This report contains important information regarding the water quality in our water system. **We're proud that your drinking water meets or exceeds all Federal and State requirements.** We have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that your water **IS SAFE** at these levels.

Where does my water come from?

The Lyon & Sioux Rural Water System obtains water from one or more groundwater aquifers, and in certain areas we purchase water from another source. The attached map will show where your drinking water source is. You can then find the test results for that source in the following tables. Every aquifer has a degree of susceptibility to contamination because of the characteristics of the aquifer, overlying materials, and human activity. Susceptibility to contamination generally increases with shallower aquifers, increasing permeability of the aquifer and overlying materials, nearby development or agricultural activity, and abandoned or poorly maintained wells. A detailed evaluation of your source water was completed by the Iowa Department of Natural Resources and is available from our office at 712-472-3755.

Why are there contaminants in my drinking water? / Is my water safe?

All sources of 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. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. 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).

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

Lyon & Sioux RWS tests for more than 76 constituents. On the following tables, we have listed only those constituents with any level of detection. All other constituents were below detecting levels. Not all tests are required each and every year. The data in the table are from the most recent testing done in accordance with the Federal Safe Drinking Water Act Regulations.

CONTACT INFORMATION

For questions regarding this information or how you can get involved in decisions regarding the water system, please contact LYON & SIOUX RURAL WATER SYSTEM at 712-472-3755.

ROCK RAPIDS WATER SOURCE

SOURCE WATER ASSESSMENT INFORMATION - This area of our water system obtains all of its water from Rock Rapids Municipal Water Works.

CONTAMINANT	MCL - (MCLG)	Compliance		Date	Violation Yes/No	Source
		Type	Value & (Range)			
Copper (ppm)	AL = 1.3 (1.3)	90th	0.81 (0.03 - 2.65) 1 sample exceeded AL	2021	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	AL = 15 (0)	90th	1.60 (1 - 2)	2021	No	Corrosion of household plumbing systems; erosion of natural deposits
Total Trihalomethanes (ppb) [TTHM]	80 (N/A)	LRAA	49 (49-49)	09/30/22	No	By-products of drinking water chlorination
Total Haloacetic Acids (ppb) [HAA5]	60 (N/A)	LRAA	24 (24-24)	09/30/22	No	By-products of drinking water disinfection
DISTRIBUTION SYSTEM						
Chlorine (ppm)	MRDL=4.0 (MRDLG=4.0)	RAA	1.28 (0.7 - 1.6)	12/31/22	No	Water additive used to control microbes
ROCK RAPIDS MUNICIPAL WATER WORKS						
Arsenic (ppb)	10 (0)	SGL	1.50	12/08/21	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronic production wastes
Selenium (ppb)	50 (50)	SGL	2.90	12/08/21	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines

Fluoride (ppm)	4 (4)	SGL	0.3	12/08/21	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Barium (ppm)	2 (2)	SGL	0.152	12/08/21	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Sodium (ppm)	N/A (N/A)	SGL	40.1	12/08/21	No	Erosion of natural deposits; Added to water during treatment process
Nitrate [as N] (ppm)	10 (10)	SGL	4.12 (3.10 – 4.12)	2022	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Note: Contaminants with dates indicate results from the most recent testing done in accordance with regulations.

KLONDIKE AND LARCHWOOD WATER SOURCES

SOURCE WATER ASSESSMENT INFORMATION – Klondike Wells - This water supply obtains a portion of its water from the Lower Big Sioux River sand and gravel of the alluvial aquifer. The alluvial aquifer was determined to be highly susceptible to contamination because the characteristics of the aquifer and overlying materials provide little protection from contamination at the land surface. The alluvial wells will be highly susceptible to surface contaminants such as leaking underground storage tanks, contaminant spills, and excess fertilizer application.

Larchwood Deep Wells -This water supply obtains a portion of its water from the sandstone of the Dakota aquifer. The Dakota aquifer was determined to have low susceptibility to contamination because the characteristics of the aquifer and overlying materials provide natural protection from contaminants at the land surface. The Dakota wells will have low susceptibility to surface contaminants such as leaking underground storage tanks, contaminant spills, and excess fertilizer application.

CONTAMINANT	MCL - (MCLG)	Compliance		Date	Violation Yes/No	Source
		Type	Value & (Range)			
Copper (ppm)	AL = 1.3 (1.3)	90th	0.175 (0.0128–0.1785)	2022	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	AL = 15 (0)	90th	3.90 (ND - 5)	2022	No	Corrosion of household plumbing systems; erosion of natural deposits
Total Trihalomethanes (ppb) [TTHM]	80 (N/A)	LRAA	23.00 (23-23)	09/30/22	No	By-products of drinking water chlorination
Total Haloacetic Acids (ppb) [HAA5]	60 (N/A)	LRAA	12.00 (12-12)	09/30/22	No	By-products of drinking water disinfection

DISTRIBUTION SYSTEM

Chlorine (ppm)	MRDL = 4.0 (MRDLG = 4.0)	RAA	1.61 (0.7 – 2.95)	9/30/22	No	Water additive used to control microbes
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KLONDIKE WATER TREATMENT PLANT

Fluoride (ppm)	4 (4)	SGL	0.287	10/18/22	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Barium (ppm)	2 (2)	SGL	0.039	10/18/22	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Selenium (ppb)	50 (50)	SGL	3.00	10/18/22	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Arsenic (ppb)	10 (0)	SGL	1.50	10/18/22	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronic production wastes
Sodium (ppm)	N/A (N/A)	SGL	36.6	10/18/22	No	Erosion of natural deposits; Added to water during treatment process
Nitrate [as N] (ppm)	10 (10)	SGL	3.37 (1.70 – 3.37)	2022	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

LARCHWOOD WATER TREATMENT PLANT

Sodium (ppm)	N/A (N/A)	SGL	88.33	01/21/20	No	Erosion of natural deposits; Added to water during treatment process
Nitrate (as N) (ppm)	10 (10)	SGL	1.18	2022	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Note: Contaminants with dates indicate results from the most recent testing done in accordance with regulations.

LEWIS & CLARK REGIONAL WATER SYSTEM SOURCE

SOURCE WATER ASSESSMENT INFORMATION –This water supply originates from a source adjacent to the Missouri River. This source is called the Missouri: Elk Point Aquifer.

CONTAMINANT	MCL - (MCLG)	Compliance	Date	Violation	Source
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		Type	Value & (Range)		Yes/No	
Chlorine (ppm)	4.0 (4.0)	RAA	2.72 (1.93 – 3.00)	12/31/22	No	Water additive used to control microbes
Arsenic	10 (0)	SGL	5	10/31/22	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium	2 (2)	SGL	0.015	10/31/22	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride (ppm)	4 (<4)	SGL	0.80 (0.63-0.80)	4/05/22	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Nitrate [as Nitrogen] (ppm)	10 (10)	SGL	0.5	10/04/22	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Note: Contaminants with dates indicate results from the most recent testing done in accordance with regulations.

DOON WATER SOURCE

SOURCE WATER ASSESSMENT INFORMATION – This water supply obtains its water from the sand and gravel of the Alluvial aquifer. The alluvial aquifer was determined to be highly susceptible to contamination because the characteristics of the aquifer and overlying materials provide little protection from contamination at the land surface. The alluvial wells will be highly susceptible to surface contaminants such as leaking underground storage tanks, contaminant spills, and excess fertilizer application.

CONTAMINANT	MCL - (MCLG)	Compliance		Date	Violation Yes/No	Source
		Type	Value & (Range)			
Lead (ppb)	AL = 15 (0)	90th	4.60 (1 - 15)	2021	No	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm)	AL = 1.3 (1.3)	90th	0.652 (0.097 – 2.058) 1 Sample exceeded AL	2021	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Total Trihalomethanes (ppb) [TTHM]	80 (N/A)	LRAA	20.00 (20 - 20)	09/30/22	No	By-products of drinking water chlorination
Total Haloacetic Acids (ppb) [HAA5]	60 (N/A)	LRAA	12.00 (12 - 12)	09/30/22	No	By-products of drinking water disinfection

DISTRIBUTION SYSTEM

Chlorine (ppm)	MRDL = 4.0 (MRDLG = 4.0)	RAA	1.57 (1.1 – 1.9)	12/31/22	No	Water additive used to control microbes
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DOON WATER TREATMENT PLANT

Gross Alpha, inc (pCi/L)	15 (0)	SGL	7.1	04/06/21	No	Erosion of natural deposits
Fluoride (ppm)	4 (4)	SGL	0.3	4/19/22	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Selenium (ppb)	50 (50)	SGL	5.2	4/19/22	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Barium	2 (2)	SGL	0.0466	4/19/22	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Sodium (ppm)	N/A (N/A)	SGL	14.5	4/19/22	No	Erosion of natural deposits; Added to water during treatment process
Nitrate [as N] (ppm)	10 (10)	SGL	7.09 (2.73 – 7.09)	2022	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Beloit #1 Well This source may be used if needed and combined with water from the Doon source

Barium (ppm)	2 (2)	SGL	0.0353	06/09/20	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	4 (4)	SGL	0.2	06/09/20	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Cyanide (ppb)	200 (200)	SGL	6.00	06/09/20	No	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories
Arsenic (ppb)	10 (0)	SGL	6.50	06/09/20	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronic production wastes
Sodium (ppm)	N/A (N/A)	SGL	15.46	06/09/20	No	Erosion of natural deposits; Added to water during treatment process

Note: Contaminants with dates indicate results from the most recent testing done in accordance with regulations.

BOYDEN AND GEORGE WATER SOURCES

SOURCE WATER ASSESSMENT INFORMATION - This water supply obtains its water from the sand and gravel of the Alluvial aquifer. The Alluvial aquifer was determined to be highly susceptible to contamination because the characteristics of the aquifer and overlying materials provide little protection from contamination at the land surface. The Alluvial wells will be highly susceptible to surface contaminants such as leaking underground storage tanks, contaminant spills, and excess fertilizer application.

CONTAMINANT	MCL - (MCLG)	Compliance		Date	Violation Yes/No	Source
		Type	Value & (Range)			
DISTRIBUTION SYSTEM						
Copper (ppm)	AL = 1.3 (1.3)	90th	0.45 (0.035 - 0.498)	2020	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	AL = 15 (0)	90th	4.50 (1 - 12)	2020	No	Corrosion of household plumbing systems; erosion of natural deposits
Chlorine (ppm)	MRDL=4.0 (MRDLG=4.0)	RAA	1.53 (1 - 1.8)	12/31/22	No	Water additive used to control microbes
Total Trihalomethanes (ppb) [TTHM]	80 (N/A)	LRA A	19.00 (19 - 19)	09/30/22	No	By-products of drinking water chlorination
Total Haloacetic Acids (ppb) [HAA5]	60 (N/A)	LRA A	13.00 (13 - 13)	09/30/22	No	By-products of drinking water disinfection
GEORGE WATER TREATMENT PLANT						
Gross Alpha, inc (pCi/L)	15 (0)	SGL	3.2	04/06/21	No	Erosion of natural deposits
Selenium (ppb)	50 (50)	SGL	2.70	05/18/21	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Fluoride (ppm)	4 (4)	SGL	0.3	05/18/21	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Barium (ppm)	2 (2)	SGL	0.114	05/18/21	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Sodium (ppm)	N/A (N/A)	SGL	12.8	05/18/21	No	Erosion of natural deposits; Added to water during treatment process
Nitrate [as N] (ppm)	10 (10)	SGL	6.39 (5.86 - 6.39)	2022	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
BOYDEN WATER TREATMENT PLANT						
Gross Alpha, inc (pCi/L)	15 (0)	SGL	13.3	04/06/21	No	Erosion of natural deposits
Combined Radium (pCi/L)	5 (0)	SGL	1.3	08/20/19	No	Erosion of natural deposits.
Uranium (ppb)	30 (0)	SGL	19	04/19/22	No	Erosion of natural deposits.
Barium (ppm)	2 (2)	SGL	0.0451	04/27/21	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	4 (4)	SGL	0.4	04/27/21	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Selenium (ppb)	50 (50)	SGL	7.90	04/27/21	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Antimony (ppb)	6 (6)	SGL	1.40	04/27/21	No	Discharge from petroleum refineries; fire retardants; ceramics; electronic; solder
Arsenic	10 (0)	SGL	1.00	04/27/21	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronic production wastes
Sodium (ppm)	N/A (N/A)	SGL	14.3	04/27/21	No	Erosion of natural deposits; Added to water during treatment process
Nitrate [as N] (ppm)	10 (10)	SGL	2.90 (2.28 - 2.90)	2022	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Note: Contaminants with dates indicate results from the most recent testing done in accordance with regulations.

Definitions

In the test results 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:

- 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 microbial contaminants. MRDLs are set for chloramines, chlorine, chlorine dioxide.
- 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.
- RAA – Running Annual Average
- LRAA – Locational Running Annual Average
- Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.
- Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow
- N/A – not applicable
- ND – not detected; laboratory analysis indicates that the constituent is not present
- SGL – Single Sample Result Action Level – Single Sample Result
- TCR – Total Coliform Rule
- Parts per million (ppm) – one part per million corresponds to one minute in two years or a single penny in \$10,000.
- Parts per billion (ppb) – one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- RTCR – Revised Total Coliform Rule
- NTU – Nephelometric Turbidity Units
- pCi/L – picocuries per liter

GENERAL 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).

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. LSRWS 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 2 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 <http://www.epa.gov/safewater/lead>.

ADDITIONAL HEALTH INFORMATION

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask advice from your health care provider.

While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

