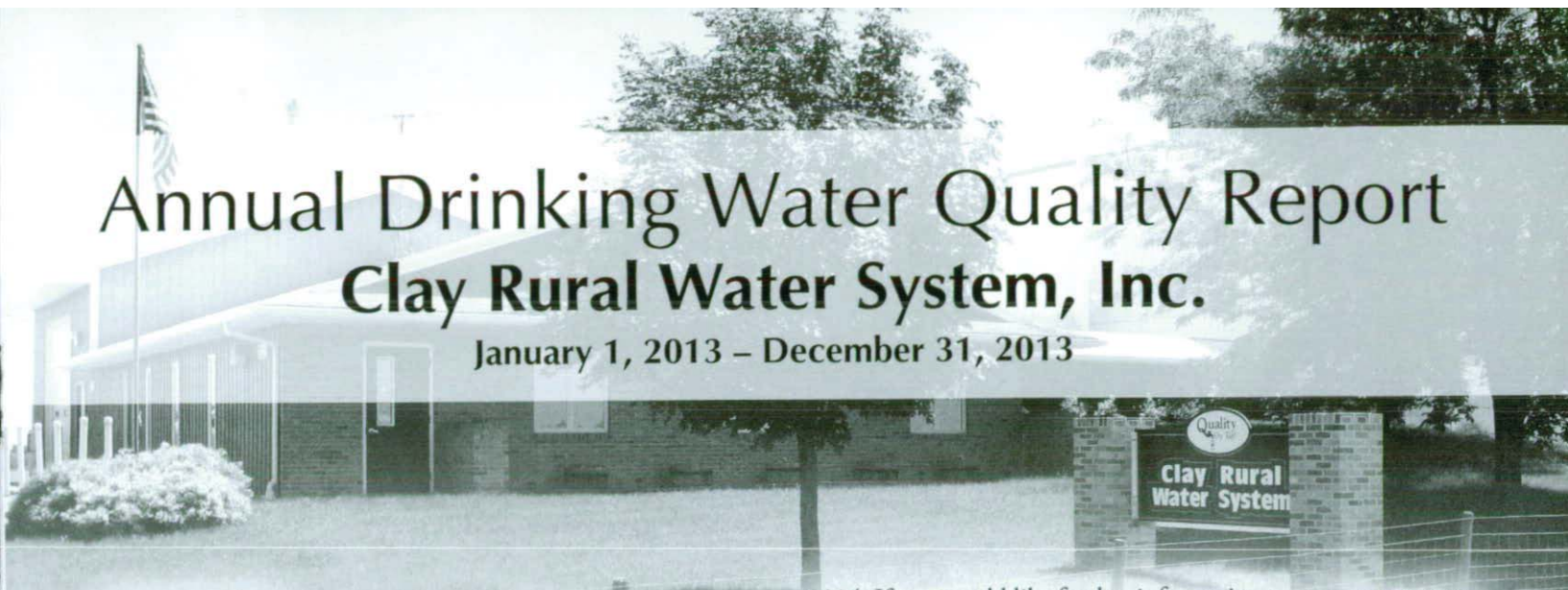
Annual Drinking Water Quality Report

Clay Rural Water System, Inc.

January 1, 2013 – December 31, 2013



Introduction

The Clay Rural Water System is pleased to present its sixteenth Annual Drinking Water Quality Report. This report is designed to inform you about the quality of water we deliver to you each day. Our constant goal is to provide you with a safe and dependable supply of drinking water. In 2013 the water system treated and delivered over 270,000,000 gallons of drinking water to its members.

We want you to fully understand the information contained in this report. If you have any questions, you are welcome to attend the Board of Directors meetings (held the fourth Thursday of every month) or please contact: Greg Merrigan (605) 267-2088.

Where Does Our Water Come From?

Wakonda Source: Clay Rural Water draws groundwater from the Lower Vermillion – Upper Missouri aquifer in central Clay County. Two wells ranging in depth from 120' to 200' pump water to the treatment plant. Water from the Wakonda plant is then treated and delivered to members in parts of five counties.

South Union Source: Clay Rural Water draws groundwater from the Dakota Formation west of McCook Lake. Two wells, 300' deep deliver water to the Wynstone Water Treatment Plant. Water is delivered to all members in Union County residing south of Elk Point. This includes the residents of the Deer Run, Wynstone, Sandy Mead and Riv-R-Land housing developments.

Source Water Protection

We have undertaken extensive efforts in the past eighteen years to protect our water sources. With the assistance of the SD Department of Environment and Natural Resources (DENR) and the South Dakota Association of Rural Water Systems, we have developed a source water assessment and protection plan for our Wakonda and Wynstone sources.

Efforts include signage, specific water sampling and revision of Clay County zoning ordinances to regulate activities in the source water area.

We will be updating both our source water protection plans in 2014. If you would like further information on our source water efforts, please contact the water system office (605) 267-2088, office@clayruralwater.com.

Why Do We Test Our Drinking Water?

The Water we pump from our wells comes from underground aquifers. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and can pick up substances resulting from the presence of animals or from human activity.

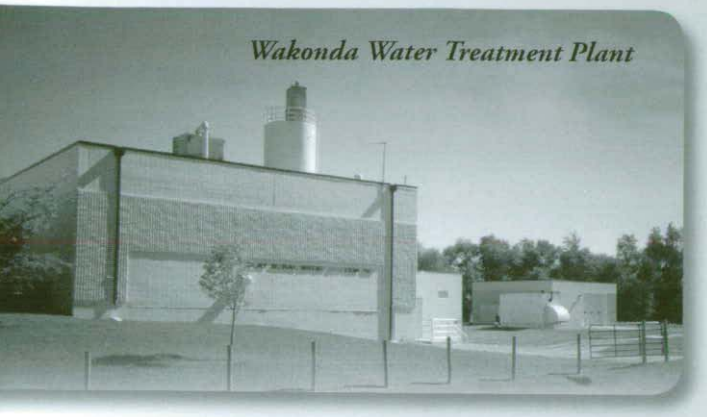
Contaminants that can occur in source water include: 1) microbial contaminants, such as viruses and bacteria, which can come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; 2) inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; 3) pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; 4) 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 ; 5) 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, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Information Provided by EPA

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 health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking


Wakonda Water Treatment Plant

Definition of Terms

The following definitions are provided to assist you in understanding our water quality test results presented in the tables on the next two pages.

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 (mg/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) – a measure of radioactivity.

Positive Samples Per Month (PSPM)

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

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.

N/A – Not Applicable

ND – Not Detected

***Optimum Flouride Level – 1.2*

MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, 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.

water than the general public. Immuno-comprised 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 (1-800-426-4791).

What Treatment Does Our Water Receive?

Wakonda Water Treatment Plant

The Wakonda water plant utilizes a lime-softening process and has a capacity of 1.2 million gallons per day. Water is pumped from two wells located near the plant. Water is first aerated to remove tastes and odors and then treated in a solids contact unit with lime and soda ash to remove minerals and soften. Lime and soda ash settle out of the water with the minerals and form a sludge that is discharged to three drying lagoons. Carbon dioxide is then added to adjust pH. The water is filtered through sand filters to remove any lime and soda ash carryover. Fluoride and chlorine are added and the water is then pumped into the distribution system by five high-service pumps.

South Union/Wynstone Water Treatment Plant

The Wynstone plant utilizes a state-of-the-art reverse osmosis treatment system with a capacity of 360,000 gallons per day. Water is pumped from two wells adjacent to the plant. Water is split as it enters the plant with 20% going to two iron and manganese removal filters and the remainder to the reverse osmosis unit where iron, manganese and hardness are removed. The two streams then combine and run through an aerator to remove odors. Fluoride and chlorine are added as the water flows to an underground 125,000 gallon clearwell. Two high service pumps pump the water to a 250,000 gallon elevated tank. Water then flows by gravity to the distribution system.

Summary of Results

The Clay Rural Water System routinely tests its water for over 80 substances. The attached tables list all the drinking water contaminants that we detected during the 2013 calendar year. The presence of these 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 Jan. 1 – Dec. 31, 2013. DENR requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Background: South Union/Wynstone Water Treatment Plant

Summary of Results - Wakonda Source *(EPA ID Number 0626)*

Substance	90% Level	Test Sites > Action Level	Date Tested	Highest Level Allowed (AL)	Ideal Goal	Units	Major Source of Contamination
Copper	0	0	8/23/12	AL = 1.3	0	ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead	1	0	8/23/12	AL = 15	0	ppb	Corrosion of household plumbing systems; erosion of natural deposits.
Substance	**Highest Level Detected**	**Range**	**Date Tested**	**Highest Level Allowed (MCL)**	**Ideal Goal (MCLG)**	**Units**	**Major Source of Contamination**
Alpha Emitters	3.2		1/19/10	15	0	pCi/l	Erosion of natural deposits.
Arsenic	2		11/19/12	10	NA	ppb	Erosion of natural deposits; runoff from orchards; runoff from glass and electronic production wastes.
Barium	0.004		11/19/12	2	2	ppm	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Chromium	1.4		11/19/12	100	100	ppb	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	1.26	1.07-1.26	4/2/13	4	4	ppm	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Haloacetic Acids	7.2	6.88-7.20	8/20/13	60	0	ppb	By-product of drinking water chlorination.
Selenium	0.9		11/19/12	50	50	ppb	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
Total Trihalomethanes	36.6	32.7-36.6	8/20/13	80	0	ppb	By-product of drinking water chlorination.

Summary of Results - South Union Source *(EPA ID Number 2185)*

Substance	90% Level	Test Sites > Action Level	Date Tested	Highest Level Allowed (AL)	Ideal Goal	Units	Major Source of Contamination
Copper	0.7	0	6/26/13	AL=1.3	0	ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead	6	0	6/26/13	AL=15	0	ppb	Corrosion of household plumbing systems; erosion of natural deposits.
Substance	**Highest Level Detected**	**Range**	**Date Tested**	**Highest Level Allowed (MCL)**	**Ideal Goal (MCLG)**	**Units**	**Major Source of Contamination**
Alpha Emitters	1.9		5/5/10	15	0	pCi/L	Erosion of natural deposits.
Arsenic	2		4/2/13	10	NA	ppb	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	0.004		4/2/12	2	2	ppm	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Chromium	3.8		4/2/13	100	100	ppb	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride	1.54	1.21-1.54	10/9/13	4	4	ppm	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Haloacetic Acids	4.86	2.81-4.86	8/28/13	60	0	ppb	By-product of drinking water chlorination.
Selenium	0.6		4/2/13	50	50	ppb	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines.
Total Trihalomethanes	18.6	11.7-18.6	8/28/13	80	0	ppb	By-product of drinking water chlorination.