

The cover features a blue background with a pattern of water droplets. A large, semi-transparent light blue circle is centered on the page, containing the title text. Below the circle, a close-up photograph of a chrome faucet with a single drop of water falling from it is visible.

Annual
WATER
QUALITY
REPORT

Reporting Year 2012

Presented By _____
Grand Island Utilities

PWS ID#: NE 31-07902

Our Commitment to You

The City of Grand Island is proud to present the Annual Water Quality Report covering testing performed between January 1 and December 31, 2012. Over the years, the Grand Island Utilities Department has been dedicated to producing drinking water that meets all state and federal standards and continually strives to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, the Utilities Department remains vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Community Participation

If you would like to observe or participate in the decision-making processes that affect drinking water quality, please attend the regularly scheduled meetings of the City Council at City Hall, 100 East 1st Street.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may 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 may also come from gas stations, urban stormwater runoff, and septic systems;

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

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

What Causes the Pink Stain on Bathroom Fixtures?

The reddish-pink color frequently noted in bathrooms on shower stalls, tubs, tile, toilets, sinks, toothbrush holders, and on pets' water bowls is caused by the growth of the bacterium *Serratia marcescens*. *Serratia* is commonly isolated from soil, water, plants, insects, and vertebrates (including man). The bacteria can be introduced into the house through any of the above mentioned sources. The bathroom provides a perfect environment (moist and warm) for bacteria to thrive.

The best solution to this problem is to continually clean and dry the involved surfaces to keep them free from bacteria. Chlorine-based compounds work best, but keep in mind that abrasive cleaners may scratch fixtures, making them more susceptible to bacterial growth. Chlorine bleach can be used periodically to disinfect the toilet and help to eliminate the occurrence of the pink residue. Keeping bathtubs and sinks wiped down using a solution that contains chlorine will also help to minimize its occurrence.

Serratia will not survive in chlorinated drinking water.

Where Does My Water Come From?

The source of drinking water used by the City of Grand Island is groundwater from the sand and gravel Ogallala Aquifer that underlies the area. This water is pumped from wells maintained by the City of Grand Island.

A wellhead protection area assessment has been prepared by the Nebraska Department of Environmental Quality (NDEQ). For more information, please contact the Ground Water Section, NDEQ, at (402) 471-6988.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Timothy Luchsinger, Utilities Director, at (308) 389-0280.

What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web site at <http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm>. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

Non Detects

The list below shows all the regulated and unregulated contaminants that were tested for and not detected in our water:

Vinyl chloride; 1,2-dichloroethane; chlorobenzene; ortho-dichlorobenzene; ethylbenzene; m,p-xylenes; styrene; bromomethane; chloroethane; tetrachloroethylene; cis-1,2-dichloroethene; ortho-chlorotoluene; para-chlorotoluene; dibromomethane; meta-dichlorobenzene; bromobenzene; bromochloromethane; n-butylbenzene; 1,2,3-trichlorobenzene; tert-butylbenzene; hexachlorobutadiene; isopropylbenzene; para-isopropyltoluene; naphthalene; para-dichlorobenzene; 1,1-trichloroethylene; carbon tetrachloride; dichloromethane; 1,2-dichloropropane; trans-1,2-dichloroethylene; 2,2-dichloropropane; 1,1-dichloropropene; 1,2-dichloropropane; 1,1,2-trichloroethane; 1,1,1,2-tetrachloroethane; 1,1,2,2-tetrachloroethane; 1,2,3-trichloropropane; n-propylbenzene; sec-butylbenzene; dichlorodifluoromethane; fluorotrichloromethane; 1,2,4-trichlorobenzene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; 1,3-dichloropropene; alachlor; aldrin; benzopyrene; bulachor; butylate; chlordane; chlorpyrifos; cyanazine; dieldrin; endrin; dyfonate; gamma-BHC; heptachlor; heptachlor epoxide; hexachlorobenzene; hexachlorocyclopentadiene; methoxychlor; metribuzin; propachlor; simazine; trifluralin; aldicarb; aldicarb sulfone; aldicarb sulfoxide; carbaryl; carbofuran; 3-hydroxycarbofuran; methomyl; oxamyl (vydate); ethylene dibromide; dibromochloropropane; PCBs; 2,4-D; 2,4,5-TP; pentachlorophenol; dalapon; dicamba; dinoseb; picloram; acifluorfen; glyphosate; diquat; paraquat; endothall; dioxin; antimony; cadmium; mercury; thallium; beryllium; cyanide; metolochlor; chloromethane; perchlorate; EPTC; 2,6-dinitrotoluene; 2,4-dinitrotoluene; molinate; terbacil; acetochlor; 4,4-DDE; MtBE; nitrobenzene; trichloroethene; toluene; benzene; total DCPA; 1,1-dichloroethylene; 1,1,1-trichloroethane; 1,1-dichloroethane.

Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 www.epa.gov/safewater/lead.



What is the typical per-day water usage?

While usage varies from community to community and person to person, on average, Americans use 183 gallons of water a day for cooking, washing, flushing, and watering purposes. The average family turns on the tap between 70 and 100 times daily. About 74% of home water usage occurs in the bathroom, about 21% in the laundry room, and about 5% in the kitchen.

Why do water pipes tend to break in winter?

Liquids generally contract when frozen and become more dense; however, the unique qualities of water cause it to expand by up to 9% when it freezes. That is why water pipes burst when temperatures reach the freezing mark.

How much water is used to create the food we eat each year?

The average American consumes 1,500 pounds of food each year; 1,000 gallons of water are required to grow and process each pound of that food. Thus, 1.5 million gallons of water is invested in the food eaten annually by just one person! This 200,000-plus cubic feet of water per person is enough to cover a football field four feet deep.

Is it okay to use hot water from the tap for cooking and drinking?

No, ALWAYS use cold water. Hot water is more likely to contain rust, copper, and lead from household plumbing and water heaters. These harmful substances can dissolve into hot water faster than they do into cold water, especially when the faucet has not been used for an extended period of time.

What type of container is best for storing water?

Consumer Reports has consistently advised that glass or BPA-free plastics such as polyethylene are the safest choices. To be on the safe side, do not use any container with markings on the recycle symbol showing 7 PC (which is the code for BPA). You could also consider using stainless steel or aluminum containers that have BPA-free liners.

How much water is used in the shower?

A 10-minute shower can take 25 to 50 gallons of water. High-flow shower heads allow a flow of 6 to 10 gallons a minute. Low-flow shower heads can cut the rate in half without reducing pressure.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water.

The state requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Arsenic (ppb)	2011	10	0	4.27	<RL-4.27	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Atrazine (ppb)	2012	3	3	0.142	ND-0.142	No	Runoff from herbicide used on row crops
Barium (ppm)	2011	2	2	0.100	0.100-0.100	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium (ppb)	2011	100	100	7.83	7.83-7.83	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2011	5	0	1.6	0.2-1.6	No	Erosion of natural deposits
Combined Uranium (pCi/L)	2012	0	20	16	13-16	No	Erosion of natural deposits
Fluoride (ppm)	2011	4	4	0.522	0.522-0.522	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Gross Alpha (pCi/L)	2012	15	0	21.9	13.0-21.9	No	Erosion of natural deposits
Haloacetic Acids [HAAs] (ppb)	2011	60	NA	5.14	0.95-5.14	No	By-product of drinking water disinfection
Nitrate ¹ (ppm)	2012	10	10	6.19	0.544-6.19	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	2011	50	50	5.35	5.35-5.35	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes] (ppb)	2011	80	NA	54.12	12.23-54.12	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2012	<5% of monthly samples are positive	0	2	NA	No	Backflow or back siphonage; Naturally present in the environment
Uranium (ppb)	2012	30	0	31.0	15.9-31.0	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2009	1.3	1.3	0.66	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2009	15	0	15	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Definitions

AL (Action Level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

grains/gal (grains per gallon): Grains of compound per gallon of water.

MCL (Maximum Contaminant Level): 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.

MCLG (Maximum Contaminant Level Goal): 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.

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.

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.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Combined Uranium (pCi/L)	2012	16	13–16	Erosion of natural deposits
Nickel (ppb)	2012	3.25	1.66–3.25	Naturally occurring
Sulfate (ppm)	2012	244	235–244	Naturally occurring
Water Hardness ² (grains/gal)	2012	20.1	16.4–20.1	Ground water from the Ogallala Aquifer

¹Nitrate 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.

²Hardness in our source water is primarily from calcium and magnesium.