# ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2016

*Presented By*

**Grand Island Utilities**

CITY OF GRAND ISLAND

PWS ID#: NE 31-07902

## Our Commitment to You

Once again the City of Grand Island Utilities Department is proud to present the Annual Water Quality report covering the period between January - December, 2016. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day to deliver the highest-quality drinking water without interruption. Although the challenges ahead are many, the Utilities Department feels that by investing in new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

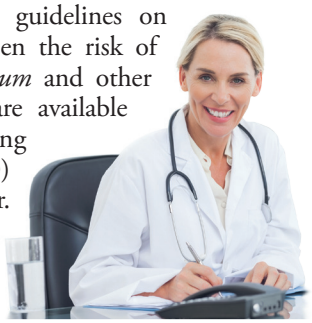
## Community Participation

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

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.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those 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 that 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.

## 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 aquifer that underlies the area. This water is pumped from wells maintained by the City.

## 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/lead.

## What's Not in Our Water?

Here is a list of Regulated and Unregulated Contaminants Tested and Not Detected: vinyl chloride; 1,2-dichloroethane; chlorobenzene; ortho-dichlorobenzene; ethylbenzene; m,p-xylenes; styrene; bromomethane; chloroethane; tetrachloroethylene; cis-1,2-dichlorethene; 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-dichoropropene; alachlor; aldrin; benzopyrene; butachlor; butylate; chlordane; chlorpyrifos; cyanazine; dieldrin; dyfonate; gamma-BHC; hepachlor; hexachlorobenzene; hexachlorocyclopentadiene; methoxychlor; metribuzin; propachlor; simazine; trifluralin; aldicarb; aldicarb sulfone; aldicarb sulfoxide; carbaryl; carbofuran; 3-hydroxycarbofuran; methomyl; oxmyl (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-trichlorethane; aldicarb sulfoxide; 1,1-dichloroethane; endrin; heptachor epoxide, selenium.

## Protecting Your Water

Bacteria are a natural and important part of our world. There are around 40 trillion bacteria living in each of us; without them, we would not be able to live healthy lives. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern, however, because it indicates that the water may be contaminated with other organisms that can cause disease.

In 2016, the U.S. EPA passed a new regulation called the Revised Total Coliform Rule, which requires additional steps that water systems must take in order to ensure the integrity of the drinking water distribution system by monitoring for the presence of bacteria like total coliform and *E. coli*. The rule requires more stringent standards than the previous regulation, and it requires water systems that may be vulnerable to contamination to have in place procedures that will minimize the incidence of contamination. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment of their system and correct any problems quickly. The U.S. EPA anticipates greater public health protection under the new regulation due to its more preventive approach to identifying and fixing problems that may affect public health.

Though we have been fortunate to have the highest-quality drinking water, our goal is to eliminate all potential pathways of contamination into our distribution system, and this new rule helps us to accomplish that goal.

## Source Water Assessment

The Nebraska Department of Environmental Quality (NDEQ) has completed the Source Water Assessment. Included in the assessment are a Wellhead Protection Area map, potential contaminant source inventory, vulnerability rating, and source water protection information. To view the Source Water Assessment or for more information, you may contact the NDEQ at (402) 471-6988 or visit www.deq.state.ne.us.

## 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 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" (code for BPA). You could also consider using stainless steel or aluminum with BPA-free liners.

## How much emergency water should I keep?

Typically, 1 gallon per person per day is recommended. For a family of four, that would be 12 gallons for 3 days. Humans can survive without food for 1 month, but can survive only 1 week without water.

## How long can I store drinking water?

The disinfectant in drinking water will eventually dissipate, even in a closed container. If that container housed bacteria before it was filled with tap water, the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

## How long does it take a water supplier to produce one glass of drinking water?

It could take up to 45 minutes to produce a single glass of drinking water.

## How many community water systems are there in the U.S.?

About 53,000 public water systems across the United States process 34 billion gallons of water per day for home and commercial use. Eighty-five percent of the population is served by these systems.

## Which household activity wastes the most water?

Most people would say the majority of water use comes from showering or washing dishes; however, toilet flushing is by far the largest single use of water in a home (accounting for 40% of total water use). Toilets use about 4 to 6 gallons per flush, so consider an ultra-low-flow (ULF) toilet, which requires only 1.5 gallons.

## Test Results

The City's water is monitored for many different kinds of contaminants on a very strict sampling schedule. The information below represents only those substances that were detected; our goal is to keep all detects below their respective maximum allowed levels. The State recommends monitoring 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 | 2.11–4.27 | No | Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes |
| **Atrazine** (ppb) | 2016 | 3 | 3 | 0.297 | 0.085–0.297 | No | Runoff from herbicide used on row crops |
| **Barium** (ppm) | 2014 | 2 | 2 | 0.162 | 0.0854–0.162 | No | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits |
| **Chromium** (ppb) | 2014 | 100 | 100 | 2.41 | <2.41–2.41 | No | Discharge from steel and pulp mills; Erosion of natural deposits |
| **Combined Radium** (pCi/L) | 2016 | 5 | 0 | 1.95 | 1.32–1.95 | No | Erosion of natural deposits |
| **Combined Uranium** (pCi/L) | 2016 | 20 | 0 | 20.2 | 15.4–20.2 | No | Erosion of natural deposits |
| **Fluoride** (ppm) | 2014 | 4 | 4 | 0.74 | 0.32–0.74 | No | Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories |
| **Gross Alpha, excluding Radon & Uranium** (pCi/L) | 2016 | 15 | 0 | 1.7 | 0.7–1.7 | No | Erosion of natural deposits |
| **Gross Alpha** (pCi/L) | 2016 | 15 | 0 | 18.5 | 14.1–18.5 | No | Erosion of natural deposits |
| **Haloacetic Acids [HAAs]** (ppb) | 2016 | 60 | NA | 7.39 | 5.58–7.39 | No | By-product of drinking water disinfection |
| **Nitrate** (ppm) | 2016 | 10 | 10 | 5.23 | 0.639–5.23 | No | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits |
| **Radium 226** (pCi/L) | 2016 | 5 | 0 | 0.568 | 0.568–0.568 | No | Erosion of natural deposits |
| **Radium 228** (pCi/L) | 2016 | 5 | 0 | 1.95 | 0.969–1.95 | No | Erosion of natural deposits |
| **TTHMs [Total Trihalomethanes]** (ppb) | 2016 | 80 | NA | 42.7 | 34.3–42.7 | No | By-product of drinking water disinfection |
| **Total Coliform Bacteria** (Positive samples) | 2016 | TT | NA | 0 | NA | No | Naturally present in the environment |
| **Uranium** (ppb) | 2016 | 30 | 0 | 26.5 | 18.2–26.5 | 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**[1] (ppm) | 2016 | 1.3 | 1.3 | 0.63 | 0/30 | No | Corrosion of household plumbing systems; Erosion of natural deposits |
| **Lead** (ppb) | 2016 | 15 | 0 | 0.86 | 0/30 | No | Corrosion of household plumbing systems; Erosion of natural deposits |

### SECONDARY SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | SMCL | MCLG | AMOUNT DETECTED | RANGE LOW-HIGH | VIOLATION | TYPICAL SOURCE |
|---|---|---|---|---|---|---|---|
| **Copper**[2] (ppm) | 2016 | 1.0 | NA | 0.3 | 0.000–0.3 | No | Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives |
| **pH** (Units) | 2016 | 6.5–8.5 | NA | 7.78 | 6.94–7.78 | No | Naturally occurring |

## UNREGULATED AND OTHER SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH | TYPICAL SOURCE |
|---|---|---|---|---|
| **Hardness** (grains/gal) | 2016 | 20.1 | 16.4–20.1 | Minerals in groundwater |
| **Nickel** (ppb) | 2015 | 9.63 | 2.14–9.63 | Naturally occurring |
| **Sulfate** (ppm) | 2015 | 243 | 41.8–243 | Runoff/leaching from natural deposits; Industrial wastes |

[1] Samples were taken from households.
[2] Copper is also regulated as a Secondary substance (for the aesthetics of water). All samples were taken from City wells.

## 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

**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).

**SMCL (Secondary Maximum Contaminant Level):** SMCLs are established to regulate the aesthetics of drinking water like appearance, taste and odor.

**TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.