



This report was prepared by:  
Council Bluffs Water Works  
2000 N. 25th Street  
Council Bluffs, IA 51501

## Meeting the Challenge

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2011. Over the years we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain 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.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions or concerns, we are always available to assist you.



For more information about this report, or for any questions relating to your drinking water, please call John Meads, Purification Department Manager, at (712) 328-1006, ext. 1020.

## Community Participation

We want our valued customers to be informed about their water utility. The Board of Water Works Trustees conduct the business of the Water Works during their regularly scheduled meetings. The meetings are normally held on the third Tuesday of the month at 4:30 p.m. at the Water Works office, 2000 N. 25th Street.

## Where Does My Water Come From?

The Council Bluffs Water Works' primary water sources are the Missouri River and the Missouri River Alluvium.

## 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 can acquire 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; and 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.

## Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent, according to government estimates).

The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Furthermore, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their Web site at [www.nrdc.org/water/drinking/bw/exesum.asp](http://www.nrdc.org/water/drinking/bw/exesum.asp).

## Fact or Fiction

Tap water is cheaper than soda pop. *(Fact: You can refill an 8 oz. glass of tap water approximately 15,000 times for the same cost as a six-pack of soda pop. And water has no sugar or caffeine.)*

Methods for the treatment and filtration of drinking water were developed only recently. *(Fiction: Ancient Egyptians treated water by siphoning water out of the top of huge jars after allowing the muddy water from the Nile River to settle. And Hippocrates, known as the father of medicine, directed people in Greece to boil and strain water before drinking it.)*

A typical shower with a non-low-flow shower head uses more water than a bath. *(Fiction: A typical shower uses less water than a bath.)*

Water freezes at 32 degrees Fahrenheit. *(Fiction: You can actually chill very pure water past its freezing point (at standard pressure) without it ever becoming solid.)*

The Pacific Ocean is the largest ocean on Earth. *(Fact: The Atlantic Ocean is the second largest and the Indian Ocean is the third largest.)*

A single tree will give off 70 gallons of water per day in evaporation. *(Fact)*

## Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use and avoid using hot water, to prevent sediment accumulation in your hot water tank.

## 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.

## Naturally Occurring Bacteria

The simple fact is, bacteria and other microorganisms inhabit our world. They can be found all around us: in our food, on our skin, in our bodies, and in the air, soil, and water. Some are harmful to us and some are not. 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 because it indicates that the water may be contaminated with other organisms that can cause disease. Throughout the year, we tested many water samples for coliform bacteria. In that time, none of the samples came back positive for the bacteria. Federal regulations now require that public water that tests positive for coliform bacteria must be further analyzed for fecal coliform bacteria. Fecal coliform are present only in human and animal waste. Because these bacteria can cause illness, it is unacceptable for fecal coliform to be present in water at any concentration. Our tests indicate no fecal coliform is present in our water.

## Testing for Cryptosporidium

*Cryptosporidium* is a microbial parasite found in surface water throughout the U.S. While monitoring of source water indicates the presence of these organisms, analyses of the treated or finished water have shown none. The Council Bluffs Water Works utilizes a multiple-barrier treatment process that effectively removes and inactivates *Cryptosporidium*.

Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctors regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

## Source Water Assessment

The City of Council Bluffs obtains its water from the Missouri River and its tributaries. Reservoirs and streams are highly susceptible to contamination because contaminants can move through them quickly. Council Bluffs' water supply is susceptible to contaminant releases from landfills and livestock confinements. A portion of the Council Bluffs water supply is obtained from an alluvial aquifer. The alluvial aquifer was determined to be highly susceptible to contamination because the characteristics of the aquifer and overlying materials allow contaminants to move through the aquifer quickly. The City of Council Bluffs' wells are most susceptible to activities such as dry cleaners, gas stations, industrial sites, and municipal wastewater discharges. A detailed evaluation of your source water was completed by the Iowa Department of Natural Resources and is available from John Meads, Purification Manager, at (712) 328-1006, ext. 1020.

## Information on the Internet

The U.S. EPA Office of Water ([www.epa.gov/watrhme](http://www.epa.gov/watrhme)) and the Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health.

## 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](http://www.epa.gov/safewater/lead).

## 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>.

## 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 tables below show only those contaminants that were detected in the water. The state allows 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
<b>Chlorine</b> (ppm)	2011	[4]	[4]	1.9	1.02–2.82	No	Water additive used to control microbes
<b>Chlorite</b> (ppm)	2011	1	0.8	0.11	ND–0.11	No	By-product of drinking water disinfection
<b>Fluoride</b> (ppm)	2011	4	4	0.94	0.58–0.94	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
<b>Haloacetic Acids [HAAs]</b> (ppb)	2011	60	NA	20.00	11.00–32.00	No	By-product of drinking water disinfection
<b>Nitrate</b> (ppm)	2011	10	10	2.2	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
<b>TTHMs [Total Trihalomethanes]</b> (ppb)	2011	80	NA	68.00	31.00–110.00	No	By-product of drinking water disinfection
<b>Total Organic Carbon<sup>1</sup></b> (removal ratio)	2011	TT	NA	1.8	1.5–2.2	No	Naturally present in the environment
<b>Turbidity<sup>2</sup></b> (NTU)	2011	TT	NA	0.16	0.03–0.16	No	Soil runoff
<b>Turbidity</b> (Lowest monthly percent of samples meeting limit)	2011	TT	NA	100	NA	No	Soil runoff

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
<b>Copper</b> (ppm)	2010	1.3	1.3	0.1	0/40	No	Corrosion of household plumbing systems; Erosion of natural deposits
<b>Lead<sup>3</sup></b> (ppb)	2010	15	0	3	0/40	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED SUBSTANCES				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
<b>Hexavalent Chromium</b> (ppm)	2011	0.00141	0.00126–0.00141	A group of man-made compounds used in the production of stainless steel, chromate chemicals, and pigments.
<b>Sodium</b> (ppm)	2011	56	NA	Erosion of natural deposits; Added to water during treatment process

INITIAL DISTRIBUTION SYSTEM EVALUATION (IDSE) <sup>4</sup>				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
<b>Haloacetic Acids [HAAs]–IDSE Results</b> (ppb)	2009	17	6–17	By-product of drinking water disinfection
<b>TTHMs [Total Trihalomethanes]–IDSE Results</b> (ppb)	2009	36	19–36	By-product of drinking water disinfection

<sup>1</sup> Minimum removal requirement = 1. Amount detected is expressed as running annual average.

<sup>2</sup> Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

<sup>3</sup> 95th percentile = 6 ppb

<sup>4</sup> We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

## Definitions

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

**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.

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**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).

**removal ratio:** A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

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