YOUR DRINKING WATER

Water Quality Report 2005

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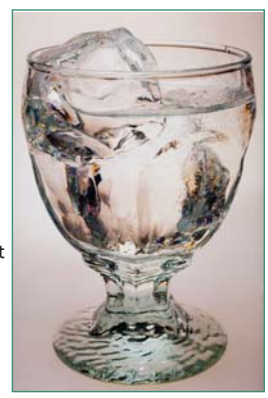
Clean Refreshing Water



This Annual Report on the quality of your water is Sioux City's record of our accountability to you, our customers. This report meets the requirements of the Environmental Protection Agency for every community water system to distribute an Annual Water Quality Report to its citizens. This report was mandated by the 1996 amendments of the Safe Drinking Water Act. This rule requires water systems to report on contaminants in their drinking water (please see the table elsewhere on this form.)

Sioux City's residents can count on the quality of their drinking water. We are pleased to report that the City's water meets or exceeds all state and federal standards.

On March 17th, 2005 there was a backflow incident involving Westway Terminal Inc. located at 4445 41st St. in Sioux City. The incident consisted of air being blown into the potable water system creating possible contamination. Due to possible contamination a boil water advisory was issued to the citizens of Sioux City until further testing could be done. Once the bacteria samples were analyzed it was apparent that no contamination was present in the water supply. A backflow prevention system was installed at Westway Terminal Inc.

Sioux City produces on average 13.75 million gallons of water per day with a peak-day demand of 28 million gallons per day. Sioux City constantly monitors water quality and treatment parameters, including a minimum of 90 bacteria samples a month, to ensure full compliance with all federal and state requirements. Sioux City's water source has been classified as groundwater under the influence of surface water. That means that Sioux City has to meet certain criteria relative to water quality monitoring and contact time of disinfectants.

If you have any questions about the information in this report, please do not hesitate to call the Water Treatment Plant at (712) 279-6156.

HELPFUL WEBSITES

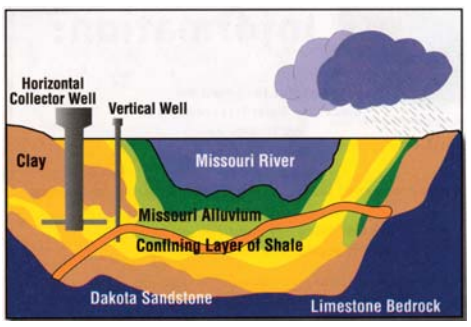
www.awwa.org
Click on Water Utility *Sites for a list of where you can access many cities' Water Quality Reports*

www.epa.gov/orwdw
EPA's office of groundwater and drinking water

www.nrdc.org
Natural Resources Defense Council - have completed studies on bottled water

www.iowadnr.com
Iowa Department of Natural Resources

www.sioux-city.org
City of Sioux City



Where Does Our Water Come From?

Sioux City's water supply is made up entirely of well water. These wells are located in Chris Larsen Park and Cook Park. These wells take water from both the Missouri alluvium, which is an aquifer that is recharged by the Missouri River and water from the Dakota sandstone aquifer. An aquifer is defined as a layer of sand and gravel under the ground with which water fills the spaces between the sand and gravel particles. Because of the use of the Missouri Alluvium, both our collector well and conventional wells, Sioux City water is classified, "Ground Water Under the Influence of Surface Water" by the Iowa Department of Natural Resources.

Sioux City has worked with the Iowa Department of Natural Resources to receive log removal credits for natural filtration occurring through the riverbank filtering process. For this reason the City needed to meet additional treatment parameters. In October of 2003 a new contact basin was constructed. This contact basin gives the chlorine longer time to interact with the water before being pumped into the distribution system.

The City of Sioux City water supply is obtained from both the Missouri alluvium and the Dakota sandstone formations. These aquifers were determined to be susceptible to contamination, because of the characteristics of the aquifer and the overlaying materials, which allows contaminants to move through an aquifer quickly. Our wells will be most susceptible to activities such as dry cleaners, gas stations, industrial sites, and municipal wastewater discharges. A detailed evaluation of your water source was completed by the Iowa Department of Natural Resources and is available from the Environmental Services Department at (712) 279-6156.

What's In My Water?

The source of drinking water, both tap and bottled, include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves minerals and radioactive materials. It can pick up substances resulting from the presence of animal or human activities.

CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER INCLUDE:

1. **Microbial Contaminants,** such as viruses and bacteria, which may 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 a result of urban storm water runoff, industrial or wastewater discharges, oil and gas production, mining, or farming.
3. **Pesticides and Herbicides,** which may come from a variety of sources such as agriculture, storm water runoff and residential use.
4. **Organic Chemical Contaminants,** including synthetic and volatile organics, which are byproducts 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 the result of oil and gas production and mining activities.

In order to ensure the tap water is safe to drink, EPA (Environmental Protection Agency) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA (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 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 Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general public. 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 (Center for Disease Control) guidelines on appropriate means to lesson the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

CRYPTOSPORIDIUM

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicated the presence of these organisms in our source water and/or finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of cryptosporidium may cause cryptosporidiosis, an abdominal infection. Systems of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-comprised people are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor 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.

Because Sioux City's water comes from wells, it is not considered to be at high risk for contamination by cryptosporidium. The most effective treatment for cryptosporidium removal is filtration. In addition to the filtration provided by the percolation of water through the ground, Sioux City's Water Treatment Plant uses filtration as part of its treatment process. The City has tested for this parasite and the results have shown that, while cryptosporidium was present on one out of four samples collected from the Missouri River none have been detected in our treated water.

The table below shows the primary contaminants found in our drinking water in 2005. All of the regulated substances in our drinking water were well within the limits EPA has set to ensure the safety of tap water. Sioux City tested for many health-related contaminants in addition to those included in the table. No other regulated contaminants were detected in our treated water.

2005 Water Quality Data-Primary (Health-Related) Contaminants

Regulated Contaminants

Microbiological Contaminants	Detected Amount	Range	MCL	MCLG	Units	Possible Sources of Contaminants	Notes	Violations
Total Coliform	1	0-1	>5%	0		Naturally present in drinking water	7-13-05. All of the repeat samples tested negative.	No. A minimum of 90 bacteria samples are taken per month.
Turbidity	0.032	.06-.032	TT/0.5	N/A	NTU	Soil Runoff.		No
Inorganic & Organic Compounds								
Fluoride	0.9		4	4	ppm	Erosion of natural deposits. Water additive which promotes strong teeth, discharge from fertilizers and Aluminum factories.		No
Nitrate [as N]	1.7		10	10	ppm	Run off from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits.		No
cis-1,2-Dichloroethylene	0.5	1.2-1.4	70	70	ppb	Discharge from industrial chemical factories.		No
1,1-Dichloroethane	0.0008		N/A	N/A	ppb	N/A		No
Sodium (A)	51		N/A	N/A	ppm	Erosion of natural deposits. Added to water during treatment process		No
Barium	0.50		2	2	ppm	Discharge from metal refineries: Erosion of natural deposits		No
Disinfection By-Products								
Chlorine	2.288	2.146-2.400	MRDL-4	MRDLG-4		Water additive used to control microbes		No
Total Trihalomethanes	48	37-63	80	N/A	ppb	By-products of drinking		No
Total Haloacetic Acids (HAA5)	15	13-20	60	N/A	ppb	By-product of drinking water disinfection		No
Radiochemical Contaminants	**Detected Amount**	**Range**	**MCL**	**MCLG**	**Units**	**Possible Sources of Contaminants**	**Notes**	
Alpha Emitters	5		15	0	pCi/L	Erosion of natural deposits		No
Combined Radium	0.08		5	0	pCi/L	Erosion of natural deposits		No
Radium 226	0.8		N/A	N/A				No
Radium 228	0.08		N/A	N/A				No
Lead & Copper	**Action Level**	**90th Percentile**	**Range**		**Units**	**Possible Sources of Contaminants**		
Lead	5	5	ND-13		ppb	Corrosion of household plumbing systems		No
Copper	0.9	0.90	ND-1.1		ppm	Corrosion of household plumbing systems		No

On March 17th 2005 there was a backflow incident at Westway Terminal Inc. located at 4425 41st St. in Sioux City. This incident consisted of air being blown into the water system creating possible contamination. A water advisory was issued to the citizens of Sioux City until further testing could be done. Once the bacteria samples were analyzed it was apparent that no contamination was present in the water supply. A backflow prevention system was installed at Westway Terminal Inc. to prevent similar situations in the future.

(A) There is not a federal or state standard for sodium. Monitoring is required to provide information to consumers that are concerned about sodium intake due to dietary precautions. While our water is relatively low in sodium, water softeners that use Sodium raises the level considerably. If you are cutting back on sodium, try attaching your water softener to only hot water lines, or not attaching the kitchen faucet to the softener.

KEY TO THE WATER QUALITY TABLE

AL – Action Level. The concentration of a contaminant which, if exceeded, triggers a treatment or other requirement which a water system must follow.

Disinfection By-Products – Compounds formed when the chlorine added to water reacts with the natural organic material in water.

MCL – Maximum Contaminant Level. The highest level of a contaminant that is legally allowed in drinking water. MCL's are set as close to the MCLG's 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. MCLG's 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 - Maximim Residual Disinfectant Level Goal. The level of a drinking disinfectant below which there is no known or expected risk of health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

N/A – Not applicable.

NTU – Nephelometric Turbidity Units. Measurement of the cloudiness of water.

PCi/L – Picocuries per Liter. Measurement of the radioactivity in water.

PPB – Parts per billion. Equal to one microgram per liter (ug/L), or the equivalent of one cent in $10,000,000.

PPM – Parts per million. Equal to one milligram per liter (mg/L), or the equivalent of one cent in $10,000.

Radiochemical Contaminants – Elements that undergo a process of natural decay during which they emit radiation such as alpha emitters.

Total Coliforms – Group of bacteria which are not harmful themselves but, if present in water, may indicate contamination with other harmful bacteria.

TT – Treatment Technique. A required process intended to reduce the level of a contaminant in drinking water.

Turbidity – Refers to the cloudiness of water caused by substances such as iron, silt or algae. While turbidity itself has no health effects, high turbidity could interfere with the disinfection of water, or could indicate problems with the filtration system at the water plant.

How Do We Treat Our Water?

Sioux City utilizes a multi-barrier approach to protecting water quality. The water treatment process begins before water enters the Treatment Plant through river-bank filtration and in the form of on-going well head protection efforts. This process does not end until the water is on your table.

MAIN FEATURES

1. Aeration – Water pumped from the City of Sioux City's well fields, both the Missouri alluvium and Dakota sandstone, is brought into contact with air. Well water is allowed to cascade through a series of trays while air is induced by fans upward to come into very close contact with this water. This cascading increases the surface area of water and permits the exchange of gasses. Aeration can be likened to streams that flow through rapids or over waterfalls. The aeration process also helps to remove iron and manganese, two naturally occurring compounds that are found in our drinking water.

2. Disinfection – Sioux City utilizes chlorine gas to disinfect its water supply. Chlorine gas is an effective killer of disease-causing organisms and helps ensure the continued safety of our drinking water.

3. Permanganation – Sioux City also adds potassium permanganate which has disinfecting qualities about it. Permanganate is also effective in accelerating the removal of iron and manganese particles from drinking water.

4. Filtration – Water is passed through filter beds within the Treatment Plant. These filter beds are made up of anthracite coal and fine sands. This process removes any remaining suspended particles that are in our water. Our turbidity is well below the national limits.

5. Contact Time - Immediately following the filtration process the water is chlorinated and taken to the contact chamber. In the contact chamber the chlorine is allowed ample time to disinfect the water before fluoride and phosphate addition.

6. Fluoridation and Phosphate Addition – After the contact chamber, fluoride is added to Sioux City's drinking water. Fluoride is found to improve bone density and tooth development, especially in younger children. Phosphate is also added to help lessen the possibilities that lead and/or copper will leach out of the piping by increasing the chemical stability of our water.

7. Distribution and Reserve – Once the final chemical addition has been completed, water is pumped into the distribution system. Sioux City is made up of five pressure zones-the Grandview system made up of Grandview, 38th Street, and the Singing Hills reservoirs. These are filled by excess water not demanded by businesses or residents of this community. The reserve water in the Grandview, 38th, and Singing Hills Boulevard reservoirs is then pressure pumped to the Morningside system, the Indian Hills system, the Western Hills system, and is reduced in pressure to service the Airport water system.

Water Conservation

Due to the lack of adequate snowfall in the upper regions of the Missouri River, and dry spring conditions we are experiencing, water conservation has become an issue we need to discuss.

A typical family of three uses approximately 150,000 gallons of water each year. All this water is treated to drinking water standards. Yet less than 2 percent, approximately 3,000 of those gallons, is actually used as drinking and cooking. The remaining water is used for lawn watering, baths, showers, washing of dishes and clothing, and flushing of toilets.

The City of Sioux City has a complete water conservation plan that would be utilized in the event that drought conditions become severe within the Midwest. We hope that we do not need to implement this plan. In order to meet your own water needs and the needs of future generations, it is important that everyone uses water wisely.

- *Did you know that lawn watering accounts for 50 percent of all home water use?*
- *The toilet is the largest single water waster.*
- *An average five to ten minute shower uses 25-70 gallons of water.*
- *Please use only full loads when turning on the dishwasher or the washing machine. Most washing machines use 45-60 gallons of water per load.*
- *When washing your car, use self-canceling hoses and a bucket of soapy water. Do not let your water run to waste while soaping down the car.*
- *Use appropriate water-saving devices on toilet and showerheads to reduce water use in the home.*

Need More Information?

Feel free to contact the Sioux City Water Treatment Plant
1101 Tri View Ave Sioux City, IA 51103
Plant: 712-279-6156

Or call the Environmental Services Administrative Office at 712-279-6222

You may bring any questions you have to any regular City Council meeting.

These meetings are held every Monday at 4:00 p.m. in the City Council chambers located on the 5th floor of City Hall.

Este informe contiene information muy importante sobre su aqua bebar. Traduscalo o hable con alquien que lo entienda bien.

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