

Expanded Monitoring of Contaminants

Nitrate

A dissolved form of nitrogen found in fertilizers and sewage by-products that may leach into ground water and other water sources. Nitrates occur naturally in some waters. Over time, nitrates can accumulate in aquifers and contaminate ground water.

Nitrate in drinking water at levels above 10 parts per million (ppm) is a health risk for infants 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, ask for advice from your healthcare provider.

Lead

Our drinking water contains little or no lead when it leaves our treatment plant. However, lead can leach into the water during overnight contact with the lead solder and brass faucets in some homes. The CRWD collects and analyzes special samples quarterly from area homes to monitor the distribution system.

Our tests show that most homes are at or well below the 15 parts per billion (ppb) – or 15 micrograms per liter of water – standard set by the EPA for annual compliance monitoring. 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. The CRWD is responsible for providing high quality drinking water, but 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 and 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.

The following state-approved laboratories can test your water for lead:

State Hygienic Laboratory Oakdale, IA 800-421-4692	TestAmerica Cedar Falls, IA 319-277-2401	Keystone Laboratory, Inc. Newton, IA 641-792-8451
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Additional information is available from the Safe Drinking Water Hotline, 800-426-4791.

Questions?

If you have questions or concerns about our water quality or this report, we invite you to attend one of two upcoming public meetings:

Thursday, June 24 from 6 - 7 p.m. at the Cedar Rapids Water Division, 1111 Shaver Road NE, Cedar Rapids

Saturday, July 17 from 7:30 a.m. - Noon at the City's Downtown Farmers' Market booth, Greene Square Park, 400 4th Ave SE.

You are also welcome to bring questions to any of the regular city council meetings, which are held at Hiawatha's City Hall, 101 Emmons St., Hiawatha. These meetings are announced in the Cedar Rapids Gazette, and a schedule of future meetings can be viewed at www.cedar-rapids.org. For more information on this Water Quality Report or for copies of our monitoring reports (CRWD or USGS), contact the Cedar Rapids Water Department at 319-286-5910.

Contaminant Violations

The NW Plant experienced two treatment technique violations in December 2009. Treatment technique violation means that normal treatment parameters were exceeded and measures need to be completed to return the plant to normal operating status. These violations occurred

Dec. 6 and 8, 2009. Each occurrence lasted approximately 12-24 hours before plant staff could remedy the situation and return the plant to normal operating status. The Iowa Department of Natural Resources was notified of each occurrence as is protocol and all residents were informed by mail.

Actions taken by CRWD to address these violations include:

- Suspended the Northwest Plant capacity improvement study process and chemical dose changes.
- Developed new procedures to safeguard against turbidity breakthroughs associated with the capacity improvement study.

This definition of turbidity was provided by the Iowa Department of Natural Resources:

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches. These symptoms, however, are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People with severely compromised immune systems, infants and some elderly may be at increased risk. These people should seek advice about drinking water from their healthcare professional. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline, 800-426-4791.

At-Risk Populations

It's important to be aware that some people may be more vulnerable than the general population to contaminants in drinking water.

This concern played a part in the boil water advisories issued by the City of Cedar Rapids this past year. These advisories were precautionary measures after water main breaks created the potential for drops in water pressure. An advisory was requested by the Iowa Department of Natural Resources personnel asking residents in affected areas to boil their water as a precaution until the advisory was lifted.

In each instance, there was no indication that water quality was compromised, but the advisory ensured the public was protected until city officials could confirm that the water was bacterially safe.

Immuno-compromised persons — those undergoing cancer chemotherapy or organ transplants, the elderly, infants or people with HIV/AIDS or other immune system disorders — can especially be at risk from infections.

We ask anyone who is immuno-compromised to seek advice about drinking water from their healthcare providers. Guidelines from the EPA and Centers for Disease Control on appropriate steps to lessen the risk of infection by microbial contaminants are available from the national Safe Drinking Water Hotline at 800-426-4791.

Water Value

Cedar Rapids residents enjoy water rates that are among the lowest in the state.

\$3.18 Buys You 1,000 Gallons of Clean Water:

Engineering & Administrative Support \$0.22

Water Source (Wells) \$0.37

Meter & Customer Service \$0.41

Distribution & Storage \$0.79

Water Treatment \$1.39



The Cedar Rapids Water Division (CRWD) is charged with delivering the highest quality water to every home, business and industry. In order to meet this goal we are continuously monitoring water quality and reviewing new technologies to ensure the best quality product for your money.

Delivering Clean, Safe Water to Your Home

The information in this report summarizes the results of our water monitoring program as required by the Environmental Protection Agency (EPA). Many of the analyses are required by the Safe Drinking Water Act and other regulations. However, in order to feel confident that the water we produce and distribute is of the best quality possible, we monitor for contaminants above and beyond the basic requirements. If you have any questions about the information in this report, please feel free to call us at 319-286-5910.

Our Commitment to You



Investing in Technology to Ensure the Safety of Our Water Supply

Part of our responsibility is making sure we have the most effective and up-to-date treatment processes that will ensure the quality of your drinking water. After careful review and consultation with the Iowa Department of Natural Resources, the Cedar Rapids Water Division invested in the first ultra-violet (UV) disinfection treatment process in the state of Iowa. The addition of UV technology will complement our current disinfection processes and allow us to continue to meet state and federal requirements now and well into the future. We expect to fully integrate this disinfection technique into our treatment process by the summer of 2010.

Using Resources Wisely

The Cedar Rapids Water Division is also committed to controlling the cost of our service. Residents of Cedar Rapids enjoy water rates that are among the lowest in the state. While we strive to operate the most efficient production and distribution processes, external costs such as electricity, chemicals and infrastructure continue to rise. We are pursuing grants and other funding options to reduce the cost of infrastructure. We also have continuous improvement teams assigned to evaluate our electrical and chemical usage with the goal of improving efficiency.



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GLOSSARY

Action level (AL)

The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Arsenic

The EPA recently lowered the arsenic Maximum Contaminant Level (MCL) to 10 ppb. Trace amounts of arsenic are occasionally detected in your drinking water at levels well below this more stringent standard. Arsenic is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Coliform

A bacteria originating in the digestive system of mammals. Its presence in water alerts lab technicians that disease-causing agents may be present.

Compliance

Following all rules and regulations defined in the Safe Drinking Water Act and maintaining water quality below MCLs.

Contaminant

One of a variety of natural or man-made physical, chemical, biological or radiological substances whose presence in public water systems may cause adverse health effects to consumers.

Detection

The positive identification of the presence of a particular contaminant. Detection of a contaminant does not necessarily represent a serious health risk to consumers if the concentration is below the MCL.

Disinfection

Killing the larger portion of microorganisms in water, with the probability that the disinfecting agent kills all disease-causing bacteria.

Filtration

A treatment process that physically removes particles from water as the water passes through a medium.

Ground water

The supply of fresh water found beneath the earth's surface, usually in aquifers. Ground water is often used to supply wells and springs.

Herbicide

A chemical agent used to kill plants, especially weeds. Used widely in agriculture.

Immuno-compromised

A physical condition in which the human immune system becomes less capable of warding off illness or infection.

Inorganic

Composed of or involving organisms (or their remains or products) that are not living. Examples of inorganic substances include minerals, rocks and salt.

Maximum Contaminant Level (MCL)

The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goals (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.

Maximum Residual Disinfection Level (MRDL)

The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfection Level Goal (MRDLG)

The level of 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.

Microbial

A group of microorganisms such as bacteria, protozoa and viruses.

Nephelometric Turbidity Unit (NTU)

A unit of measure used to determine the clarity of drinking water.

Organic

Of, pertaining to, or derived from living organisms. Organic matter contains carbon, hydrogen and oxygen. Examples include humans, plants and animals.

Particulates

Of or relating to minute separate particles.

Pesticides

Any substance or chemical applied to kill or control pests, including weeds, insects, algae, rodents and other undesirable agents.

Radioactivity

The spontaneous decay or disintegration of an unstable atomic nucleus, accompanied by the emission of radiation.

Radon

Radon is a radioactive gas that you can't see, taste or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes and other household activities. Compared to radon entering the home through tap water will, in most cases, be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that aren't too costly.

For additional information, call your state radon program (800-838-5992) or call the EPA's Radon Hotline (800-767-7236).

Surface water

All water naturally open to the atmosphere and all springs, wells or other collectors that are directly influenced by surface water. Water located close to the earth's surface.

Treatment technique (TT)

A required process intended to reduce the level of a contaminant in drinking water.

Turbidity

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

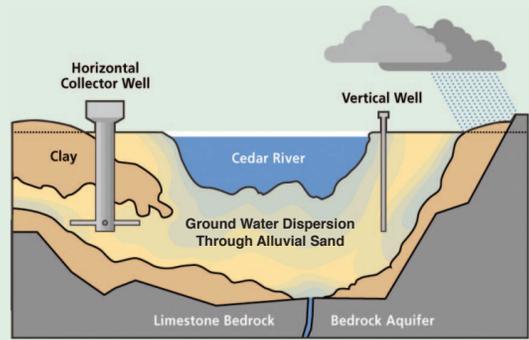
Violation

Exceeding the MCL of a contaminant regulated by the federal government; failure to properly monitor regulated contaminants would also be considered a violation.





Where Our Water Comes From



The City of Cedar Rapids obtains its drinking water supplies from shallow vertical and collector wells constructed in the sand and gravel deposits along the Cedar River. Those deposits form an underground water-bearing layer called an alluvial aquifer. Because of continuous pumping of the City's wells, most of the water in the aquifer is pulled from the river. The rest of the water is supplied as water percolates up from a deeper bedrock aquifer or down from the top of the ground.

Our drinking water from those wells benefits from natural filtration through the riverbank. This natural sand filtration has proven to be a beneficial pretreatment to water before it reaches the City's two conventional lime-softening facilities.

How We Protect the Quality of Your Drinking Water

The Cedar Rapids Water Division (CRWD) continues to work with state and federal agencies to monitor and assess our watershed. The Cedar River watershed covers over 6,500 square miles upstream of Cedar Rapids and extends into

southern Minnesota. Source water assessment identifies potential sources of contamination to the water we use to treat for drinking water purposes. Although efforts are made on many fronts, farm-field run-off continues to be a primary concern and risk for contamination of our source water. We continue to actively monitor the watershed and have initiated a watershed protection program. (If you are interested in reviewing our source water assessment or any monitoring results, please contact the CRWD at 319-286-5910.)

How We Treat Our Water

Our treatment process involves a multi-barrier approach to protect our drinking water from the source to your tap. This includes source water monitoring, well-head protection, riverbank restoration, treatment processes of softening, filtration and disinfection, as well as distribution-system monitoring and maintenance.

Treatment Process Highlights

1. AERATION

Once water has been drawn from the wells into the City's treatment plants, it undergoes aeration. Raw or untreated water is allowed to cascade down a series of trays, increasing the surface area of the water and promoting the exchange of gases. Aeration also removes undesirable gases such as radon. Aeration is similar to the natural process that occurs when a stream flows through rapids or over falls.

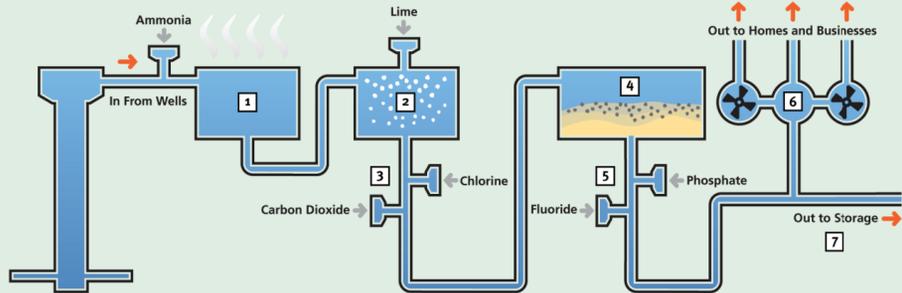
2. SOFTENING

The CRWD adds slaked lime to the water. This softens or reduces the minerals that typically make water "hard." Excessive hardness increases soap use, deposits scale in water heaters and boilers, interferes with some industrial processes and sometimes gives water an unappealing taste and odor. Resulting lime residual materials are removed and applied to farmland as soil conditioner.



3. RECARBONATION & CHLORINATION

The CRWD lowers water pH by adding carbon dioxide and adds chlorine to disinfect the water. The chlorine helps ensure our water's microbiological safety by killing disease-causing organisms. The Division also adds a trace amount of ammonia to complete the disinfection process.



4. FILTRATION

Water is then passed through a sand and gravel filter bed, removing any remaining suspended matter.



5. FLUORIDATION & PHOSPHATE ADDITION

After filtration, the CRWD adds fluoride to promote children's dental health. Phosphate is also added to chemically stabilize the water and lessen the possibility that lead will leach out of pipes and into tap water.



6. DISTRIBUTION

From here, finished water is pumped directly into the three principal water distribution systems that serve homes and businesses throughout the City.

7. RESERVES

Water not immediately consumed flows into storage tanks for use when demand exceeds plant pumpage. Water stored in elevated tanks helps stabilize pressure in the distribution system and serves as an emergency reserve for fire protection.

Installation of UV Disinfection Timeline



Water Quality Findings

This table summarizes required water quality monitoring results for regulated parameters that were detected in the 2009 calendar year. Results for tests we perform above and beyond the minimum requirements are indicated with an asterisk(*). A comprehensive report of all water quality testing is available from the Water Division.

WATER TREATMENT PLANTS - FINISHED WATER										
Inorganic Chemicals				J Ave. Water Plant			NW Water Plant			Source of Contaminant
	Units	MCL	MCLG	Max	Range	Average	Max	Range	Average	
Nitrate*	mg/L	10	10	5.23	1.16 - 5.23	3.11	5.8	2.16 - 5.80	4.39	Run-off from fertilizer, leaching from septic tanks, sewage; erosion of natural deposits
Nitrite*	mg/L	1	1	0.04	ND - 0.04	0.02	0.03	ND - 0.03	0.01	Run-off from fertilizer, leaching from septic tanks, sewage; erosion of natural deposits
Fluoride	mg/L	4	4	1.11	0.11 - 1.11	0.87	1.2	0.08 - 1.2	0.91	Water additive which promotes strong teeth; erosion of natural deposits, discharge from fertilizer and aluminum factories
Sodium*	mg/L	NA	NA	13.3	8.5 - 13.3	10.8	11	6.9 - 11	9.1	Erosion of natural deposits; added to water during treatment process
Sulfate*	mg/L	NA	NA	36.9	26.2 - 36.9	30.2	36.5	24.7 - 36.5	29.3	Erosion of natural deposits
Chloride*	mg/L	NA	NA	33.2	24.4 - 33.2	28.6	32.8	23.4 - 32.8	27.3	Erosion of natural deposits, run-off, erosion
Arsenic*	µg/L	10	10	ND	ND	ND	ND	ND	ND	Erosion of natural deposits. Monthly samples collected at each plant resulted in no detects for the year

Common Herbicides										
	Units	MCL	MCLG	Max	Range	Average	Max	Range	Average	Source of Contaminant
Altrazine	µg/L	3	3	0.41	0.13 - 0.41	0.27	0.43	0.12 - 0.43	0.269	Run-off from fertilizer used on row crops
Metalachlor*	µg/L	Unregulated	Unregulated	0.14	0.11 - 0.14	0.12	0.11	0.10 - 0.11	0.11	Run-off from fertilizer used on row crops
Acetochlor*	µg/L	Unregulated	Unregulated	0.16	0.10 - 0.16	0.14	0.16	0.10 - 0.16	0.13	Run-off from fertilizer used on row crops
Desethyl Atrazine*	µg/L	Unregulated	Unregulated	ND	ND	ND	0.11	0.11	0.11	Run-off from fertilizer used on row crops

Radiological										
	Units	MCL	MCLG	Max	Range	Average	Max	Range	Average	Source of Contaminant
Radon*	pCi/L	NA	NA	107	51 - 107	54.3	23	<15 - 23	<18.5	Erosion of natural deposits
Combined Radium	pCi/L	NA	NA	ND	ND	ND	ND	ND	ND	Erosion of natural deposits

TREATMENT TECHNIQUE INDICATORS											
Turbidity		J Ave. Water Plant					NW Water Plant				
	MCL	Units	Max	Range	Avg.	Violation	Max	Range	Avg.	Violation	Source of Contaminant
Treatment technique requires that turbidity of combined filter effluent not exceed 1.0 NTU at any time	1.0	NTU	0.28	0.03 - 0.28	0.05	NO	3.87	0.03 - 3.87	0.06	YES	Soil Run-off. The NW Plant had two turbidity treatment technique violations in Dec. 2009. These violations occurred during a treatment optimization/plant capacity study.
Treatment technique requires that no more than 5% of combined filter effluent turbidity samples exceed 0.3 NTU monthly	5%	%	0.00%	0.00%	0	NO	6.50%	0 - 6.5%	1	YES	Soil Run-off. The NW Plant had two turbidity treatment technique violations in Dec. 2009. These violations occurred during a treatment optimization/plant capacity study.

Turbidity is an indicator of treatment filter performance and is regulated as a treatment technique.

Total Organic Carbon (TOC)											
	J Ave. Plant					NW Water Plant					
	MCL	Units	Max	Range	Avg.	Violation	Max	Range	Avg.	Violation	Source of Contaminant
Treatment technique requires that the annual average of credits given for TOC removal be at least 1	Credits for TOC removal		2.96	1.76 - 2.96	1.83	NO	2.56	1.44 - 2.56	1.52	NO	Naturally present in the environment

DISTRIBUTION SYSTEM MONITORING										
Lead and Copper Rule	Units	Action Level (AL)	MCLG	Max	Range	90%	95%	Samples Exceeding Action Level	Violation	Source of Contaminant
Lead	µg/L	15	0	18.9	ND - 18.9	4.4	6.8	1	NO	Corrosion of household plumbing systems
Copper	mg/L	1.3	1.3	0.16	ND - 0.16	0.06	0.09	0	NO	Corrosion of household plumbing systems

Total Coliform Rule										
Coliform	Units	MCL	MCLG	Max	Range	Average	Total # Samples	# Samples Exceeded MCL	Violation	Source of Contaminant
Coliform	%	> 5% per month	0	ND	ND	ND	1,243	0	NO	Naturally present in the environment

Disinfectant							
MRDL	MRDLG	Max	Range	Average	Violation	Source of Contaminant	
4	4	3.5	3.1 - 3.5	3.4	NO	Water additive used to control microbial growth	

Disinfection By-Products														
		J Ave. Plant Service Area					NW Plant Service Area					Source of Contaminant		
	Units	MCL	MCLG	Max	Range	Avg.	Violation	Max	Range	Avg.	Violation			
Total Trihalomethanes (TTHM)	µg/L	80	NA	ND	ND	ND	NO	3.7	0 - 3.7	2.01	NO	By-product of chlorinating drinking water		
Total Haloacetic Acids (HAA5)	µg/L	60	NA	ND	ND	ND	NO	ND	ND	ND	NO	By-product of chlorinating drinking water		

UCMR2 (UNREGULATED CONTAMINANT MONITORING RULE)						
J Ave. Plant Nitrosamines						
N-nitroso-dimethyl amine (NDMA) µg/L	N-nitroso-methyl ethyl amine (NMEA) µg/L	N-nitroso diethyl amine (NDEA) µg/L	N-nitroso-di-n-propylamine (NDPA) µg/L	N-nitroso pyrrolidine (NPYR) µg/L	N-nitroso-di-n-butylamine (NDBA) µg/L	Source of Contaminant
0.0032	ND	ND	ND	ND	ND	By-product of manufacturing and/or product of chemical or biological reactions of nitrate compounds

NW Plant Nitrosamines						
N-nitroso-dimethyl amine (NDMA) µg/L	N-nitroso-methyl ethyl amine (NMEA) µg/L	N-nitroso diethyl amine (NDEA) µg/L	N-nitroso-di-n-propylamine (NDPA) µg/L	N-nitroso pyrrolidine (NPYR) µg/L	N-nitroso-di-n-butylamine (NDBA) µg/L	Source of Contaminant
ND	ND	ND	ND	ND	ND	By-product of manufacturing and/or product of chemical or biological reactions of nitrate compounds

Acronyms: ND: Not Detected MRDL: Maximum Residual Disinfectant Level NR: Not Regulated mg/L: Milligrams per liter or parts per million µg/L: Micrograms per liter or parts per billion pCi/L: Pico-curries per liter MCL: Maximum Contaminant Level MCLG: Maximum Contaminant Level Goal NA: Not Applicable NTU: Nephelometric Turbidity Unit MRDLG: Maximum Residual Disinfection Level Goal Max: Highest Level Detected

The Following is an important message from the Environmental Protection Agency: Drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. That's because as the water we draw from — lakes, rivers, streams, ponds, reservoirs, springs and wells — travels over the surface of the land or through the ground, it picks up naturally occurring minerals and, in some cases, radioactive material. It can also pick up substances resulting from the presence of animals or from human activity. 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 at 800-426-4791 or visiting the website at www.epa.gov/ogwdw. Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses and parasites, which can cause symptoms such as nausea, cramps, diarrhea and associated headaches.