CEDAR RAPIDS
City of Five Seasons®


NORTHWEST WATER TREATMENT PLANT


J AVENUE WATER TREATMENT PLANT

Great Tasting WATER
CITY OF CEDAR RAPIDS

2017

Water Quality Report

We work around the clock to ensure your drinking water is of the highest quality.

This report illustrates the scrutiny water undergoes before and after it leaves our facilities.

Serving the City of Cedar Rapids, the City of Robins, the Glenbrook Cove Subdivision of Marion and the Poweshiek Water Association.

IMPROVING WATER QUALITY FOR ALL

Cedar Rapids is committed to providing safe, clean drinking water when our consumers need it—today and into the future. The City collaborates with many partners to help protect our precious resource before it reaches your tap and as it heads downstream.

WHAT'S HAPPENING UPSTREAM

The City's water quality commitment extends beyond our local area. The City collaborates with farmers, conservation groups, agricultural or commodity groups, and other significant stakeholders upstream to improve soil health and water quality. The Middle Cedar Partnership Project (MCPP) is one example of how a collective effort can work to reduce surface runoff that contributes to Cedar River flooding. Here are some practices implemented in and on the outer edges of fields in the MCPP area:

Cover Crops

Crops planted during or after harvest control soil erosion, increase water retention, and improve nutrient uptake. In 2017, 15.5% of the MCPP target area was part of a cover crop program.

Bioreactors

Drainage water is routed through trenches filled with woodchips, reducing the amount of nitrates delivered downstream. In 2017, a bioreactor was installed in the MCPP target area.

Saturated Buffers

Control structures can be installed to divert drainage water, which raises the water table. Nitrates filter out through soil in the buffer when the drainage water interacts with plants and microbes. In 2017, two saturated buffers were installed in the MCPP target area.

Wetlands

Drainage water is routed through wetlands, providing wildlife habitat and other benefits. Wetland plants take in nutrients from the drainage, reducing nitrates downstream.

Photo credit: Iowa Soybean Association

WHAT'S HAPPENING IN CEDAR RAPIDS

Stormwater — or rainwater and snowmelt from hard surfaces like roofs, driveways, and sidewalks — flows directly into streams and rivers instead of soaking into the ground. Unlike sewage, stormwater is not treated for pollutants. The City invests in various practices to improve the stormwater we send downstream:

Landscaping Features

Native vegetation soaks up runoff, absorbing nutrients and providing habitat for pollinators. Features like rain gardens, bioretention cells, and bioswales capture excessive runoff in ponds or send runoff to a storm sewer or surface water system.

Soil Quality Restoration

Tillage, aeration, and compost improve lawn health. Healthy soil absorbs a greater volume of runoff.

Permeable Pavers

Permeable pavers allow stormwater to seep through their joints and soak into the soil beneath instead of flowing directly to creeks and rivers.

STORMWATER COST-SHARE PROGRAM:

The Stormwater Cost-Share Program reimburses 50% of costs (up to $2,000) for the installation of features that improve the quality and decrease the quantity of stormwater. Private property owners subject to the Stormwater Utility Fee are eligible to participate in the program. For more information, visit CityofCR.com/stormwater.

Project Updates

KIRKWOOD TANK

Construction of a new 1.5 million gallon tank began in 2017 and will be completed in 2018. The new tank will increase the resiliency of the water distribution system and enhance fire protection in the neighborhood.

J AVE. WATER TREATMENT PLANT

Work is underway on Phase II of a multi-phase project that will bring necessary updates to the original 1929 water treatment facility. Upgrades will help ensure the facility can meet full production demands when necessary in the future.

WHAT'S HAPPENING IN LINN COUNTY

The City of Cedar Rapids is an active partner across various water quality improvement efforts within Linn County. Here are a few projects that have already made a positive impact:

Oxbow Restoration

Remnants from river and creek paths that have disconnected from the main channel can be restored and reconnected to the watercourse, providing habitat, flood storage capacity, and reducing sediment and nutrient loads. In 2017, with the help of The Nature Conservancy, both Linn County and Cedar Rapids restored oxbows.

Branching Out

Alliant Energy and Trees Forever help groups plant trees to capture stormwater, sequester atmospheric carbon, and reduce local air pollution and noise levels. With help from volunteers and the forestry division, the Cedar Rapids Utilities Department has planted 192 new trees on City property since 2015.

1,000 Acres Pollinator Initiative

Cedar Rapids is partnered with the Monarch Research Project to convert unproductive public land into rich pollinator habitats which benefit stormwater and nutrient management. Cedar Rapids installed 182 acres of new native prairie in 2017 as part of the county-wide initiative. Plans to convert 86 more acres in 2018 will bring Cedar Rapids' total to more than 400 acres of native prairie.

Solar Projects

Cedar Rapids installed 174 kW of solar at three water booster stations, projecting $298,000 in energy cost savings over the life of the panels and a 275-thousand pound reduction of CO_2 emissions every year. SolSmart rates Cedar Rapids and Linn County gold for their solar-ready initiatives.

Educational Information

NITRATE

A nitrate is a dissolved form of nitrogen found in fertilizers and sewage byproducts that may leach into groundwater and other water sources. Nitrates occur naturally in some waters. Over time, nitrates can accumulate in aquifers and contaminate groundwater.

Nitrate in drinking water at levels above 10 ppm is a potential 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 health care provider.

LEAD

Our drinking water contains little or no lead when it leaves our treatment plants. However, lead can leach into the water during overnight contact with the lead solder and brass faucets in some homes. Because of that, the Cedar Rapids Water Division (CRWD) collects and analyzes special samples quarterly from area homes to more frequently 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 — treatment technique standard set by the Environmental Protection Agency (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 (1-800-426-4791) 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 Labs: Newton, IA | 641-792-8451

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. Immuno-compromised persons — those undergoing cancer chemo-therapy or organ transplants, some elderly or infants and people with HIV/AIDS or other immune system disorders — can be particularly at risk from infections. We ask anyone that may be at risk to seek advice about drinking water from their health care providers. Guidelines from the EPA and Centers for Disease Control on appropriate steps to lessen the risk of infection by microbial contaminants and/or Cryptosporidium are available from the National Safe Drinking Water Hotline at 1-800-426-4791.

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:

Saturday, June 2
8 a.m. - Noon,
Downtown Farmers' Market

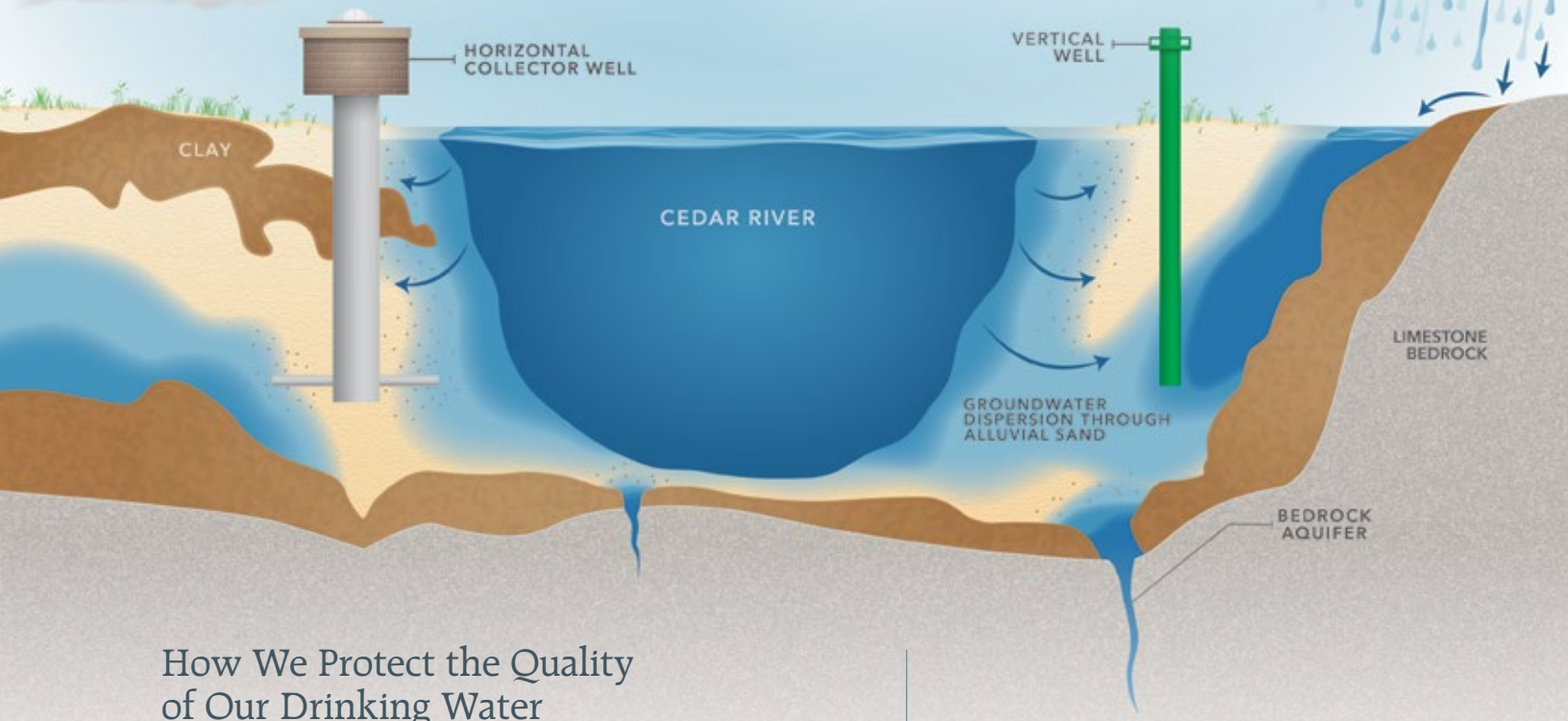
Thursday, June 28
5 - 6 p.m.,
NewBo City Market, 1100 3rd St. SE

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 Our Drinking Water

The Cedar Rapids Water Division continues to work with state and federal agencies to monitor and assess our watershed. The Cedar River watershed covers more than 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 runoff 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.

How We Treat Our Water

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

WATER VALUE

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

ENGINEERING AND ADMINISTRATIVE SUPPORT **$0.39**

WATER SOURCE (WELLS) **$0.48**

METER AND CUSTOMER SERVICE **$0.62**

DISTRIBUTION AND STORAGE **$0.97**

WATER TREATMENT **$1.69**

$4.15 buys you 1,000 gallons of clean water

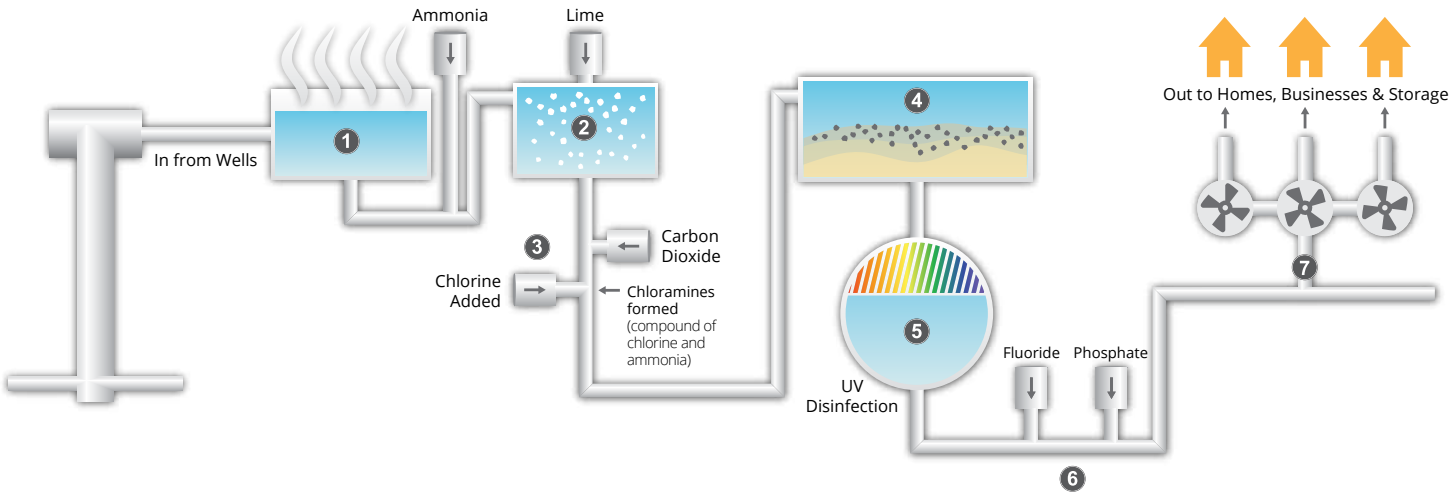
Treatment Process Highlights

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 Cedar Rapids Water Division (CRWD) adds lime chemical 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 or used as fill in approved land reclamation projects.

3 Recarbonation and 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 CRWD also adds a trace amount of ammonia to form chloramine to help the disinfection process.

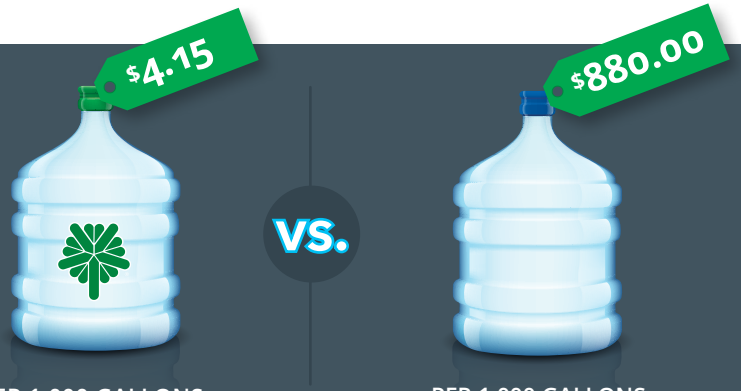
4 Filtration
Water is then passed through a sand and gravel filter bed, removing any remaining suspended matter.



5 UV Disinfection
Next, the water enters the ultraviolet (UV) light disinfection system where special lamps emit ultraviolet light into the water. The UV energy instantly damages the genetic material of any microorganisms in the water, eliminating their ability to reproduce and cause infection. Following UV disinfection, water passes through a contact tank where time is provided for the chlorine compound created in Step 3 to complete the disinfection process.

6 Fluoridation and Phosphate Addition
After UV disinfection, 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 and copper will leach out of pipes and fixtures into tap water.

7 Distribution
From here, finished water is pumped directly into the distribution system. The distribution system includes water storage tanks, booster stations, and more than 600 miles of water mains. Water stored in elevated tanks or pumped through booster stations helps stabilize pressure in the distribution system and serves as an emergency reserve for fire protection.



PER 1,000 GALLONS FROM CITY

PER 1,000 GALLONS PURCHASED AT THE STORE (AT $.88/GALLON)

Great Tasting WATER
CITY OF CEDAR RAPIDS

Water Quality Findings

This table summarizes required water quality monitoring results for regulated parameters that were detected in the 2017 calendar year. A comprehensive report of all water quality testing is available from the Water Division.

WATER TREATMENT PLANTS - FINISHED WATER

INORGANIC CHEMICALS	UNITS	MCL	MCLG	VIOLATION	J AVE. PLANT RANGE	J AVE. PLANT REPORTED	NW PLANT RANGE	NW PLANT REPORTED	POSSIBLE SOURCES OF CONTAMINANT
Arsenic	µg/L	10	0	No	ND - 1.03	0.49 ♦	ND - 0.61	0.36 ♦	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Nitrate	mg/L	10	10	No	0.38 - 6.53	6.53 ¤	0.64 - 6.60	6.6 ¤	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite	mg/L	1	1	No	ND - 0.08	0.08 ¤	ND - 0.06	0.06 ¤	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium	mg/L	NA	NA	No	NA	13.0 †	NA	11.0 †	Erosion of natural deposits; added to water during treatment process
Fluoride	mg/L	4	4	No	0.44 - 0.93	0.69 ♦	ND - 0.85	0.64 ♦	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories.
ORGANIC CHEMICALS					RANGE	REPORTED	RANGE	REPORTED	
Toluene	mg/L	1	1	No	ND - 0.0005	0.0005 †	NA	ND	Discharge from petroleum factories. J Ave Plant Detect from 2016, 2017 result = ND
Atrazine	µg/L	3	3	No	ND - 0.20	0.06 ♦	ND - 0.20	0.07 ♦	Runoff from herbicide used on row crops
RADIONUCLIDES					RANGE	REPORTED	RANGE	REPORTED	
Combined Radium	pCi/L	5	0	No	NA	1.1 †	NA	ND	Erosion of natural deposits
Radium -226	pCi/L	5	0	No	NA	ND	NA	ND	Erosion of natural deposits
Radium -228	pCi/L	5	0	No	NA	1.1 †	NA	0.8 †	Erosion of natural deposits
Gross Alpha	pCi/L	15	0	No	NA	ND	NA	0.7 †	Erosion of natural deposits. NW Plant Detect from 2015, 2017 result = ND
TREATMENT TECHNIQUE INDICATORS					RANGE	REPORTED	RANGE	REPORTED	
Total Organic Carbon	Removal Credits	TT	NA	No	0.12 - 3.07	1.66 ✶	0.57 - 2.86	1.64 ✶	Naturally present in the environment
					Running Annual Average TOC Credits must be > 1.0				
Turbidity	NTU	TT	NA	No	0.04 - 0.10	0.10 ¤	0.02 - 0.47	0.47 ¤	Soil runoff
	Cannot exceed 1.0 NTU & Monthly no more than 5% > 0.3 NTU				% > 0.3 NTU		% > 0.3 NTU		
					0		0.0003 ¤		

DISTRIBUTION SYSTEM MONITORING

LEAD AND COPPER RULE	UNITS	ACTION LEVEL (AL)	MCLG	VIOLATION	RANGE	90TH PERCENTILE	95TH PERCENTILE	SAMPLES EXCEEDING AL	POSSIBLE SOURCES OF CONTAMINANT
Lead	µg/L	15	0	NO	0.1 - 48.2	3.9	7.8	2	Corrosion of household plumbing systems; erosion of natural deposits
Copper	mg/L	1.3	1.3	NO	0.0035 - 0.2350	0.0775	0.0833	0	Corrosion of household plumbing systems; erosion of natural deposits

REVISED TOTAL COLIFORM RULE	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Total # Samples/Month	104	104	105	104	104	115	104	104	101	108	108	108
# Positive Coliform Samples/Month	0	0	0	0	0	0	0	0	1	0	0	0
Level 1 Assessment Required	No	No	No	No	No	No	No	No	No	No	No	No
Meets Monthly MCL of <5% Positive Coliform/Month	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

In September 2017 we incurred a Tier 3 Monitoring Violation by only collecting 97 of the required 100 routine water samples to test for the presence of total coliform bacteria. We have modified how monthly sample collection is tracked to more completely reflect all samples that are collected and ensure appropriate sample designations are documented.

DISINFECTANT & DISINFECTION BY-PRODUCTS	UNITS	MCL	MCLG	VIOLATION	DISTRIBUTION SYSTEM RANGE	DISTRIBUTION SYSTEM REPORTED	
Total Chlorine Residual	mg/L	4	4	No	2.1 - 3.9	3.5 ♦	Water additive used to control microbial growth
Total Trihalomethanes (TTHM)	µg/L	80	NA	No	ND - 3.4	2.6* ➤	By-product of drinking water disinfection
Total Haloacetic Acids (HAA5)	µg/L	60	NA	No	ND	ND	By-product of drinking water disinfection

**Highest LRAA at Site DB02*

KEY:

♦ Highest Running Annual Average | ¤ Maximum Value | † Single Result | ✶ Lowest Running Annual Average | ➤ Highest Locational Running Annual Average

UNREGULATED AND SECONDARY CHEMICALS

INORGANIC CHEMICALS	UNITS	MCL	MCLG	J AVE. PLANT RANGE	J AVE. PLANT AVG	NW PLANT RANGE	NW PLANT AVG	POSSIBLE SOURCES OF CONTAMINANT
Chloride	mg/L	NA	250	24.1 - 30.9	26.9	22.0 - 29.4	25.4	Erosion of natural deposits, run-off
Copper	mg/L	NA	1.0	ND - 0.0086	0.0038	ND - 0.0100	0.0055	Corrosion of household plumbing, erosion of natural deposits
Manganese	mg/L	NA	0.05	0.0049 - 0.0322	0.0154	ND - 0.0048	0.0004	Corrosion of household plumbing, erosion of natural deposits
Sulfate	mg/L	NA	250	23.9 - 35.4	28.0	22.9 - 36.0	27.8	Erosion of natural deposits
Zinc	mg/L	NA	5	0.1800 - 0.2700	0.2031	0.1850 - 0.2450	0.2186	Corrosion of household plumbing, erosion of natural deposits
ORGANIC CHEMICALS				RANGE	AVG	RANGE	AVG	
Chloroform	µg/L	NA	70	1.0 - 1.4	1.2	1.6 - 2.1	1.9	By-product of drinking water disinfection
Bromodichloromethane	µg/L	NA	0	NA	ND	ND - 0.7	0.3	
Dichloroacetic Acid	µg/L	NA	0	2.0 - 3.0	2.2	1.0 - 3.0	2.2	
Trichloroacetic Acid	µg/L	NA	20	NA	ND	ND - 1.0	0.2	
Metolachlor	µg/L	NA	NA	ND - 0.20	0.07	ND - 0.30	0.10	Run-off from fertilizer used on row crops
RADIONUCLIDES				RANGE	AVG	RANGE	AVG	
Radon	pCi/L	NA	NA	36 - 70	56 ♦	19 - 43	28 ♦	Erosion of natural deposits

UCMR2 (UNREGULATED CONTAMINANT MONITORING RULE) 2009 - 2010

NITROSAMINE COMPOUNDS	J AVE. TREATMENT PLANT		J AVE. DISTRIBUTION AREA		NW TREATMENT PLANT		NW PLANT DISTRIBUTION AREA	
	RANGE	AVG	RANGE	AVG	RANGE	AVG	RANGE	AVG
N-nitroso- dimethyl amine (**NDMA**) µg/L	0.0032 - 0.0056	0.0043	0.0038 - 0.0059	0.0052	ND - 0.0027	0.0007	ND - 0.0097	0.0051

NO CURRENT REGULATORY MCL - EPA Mandatory sampling and Analysis to determine contaminate occurrence nationally and establish regulatory MCL's.

UCMR3 (UNREGULATED CONTAMINANT MONITORING RULE) - 2013

		1,4 Dioxane	Chromium 6+	Total Chromium	Total Molybdenum	Total Strontium	Total Vanadium
J Ave. Treatment Plant	Range	ND - 0.12	1.3 - 2.0	1.5 - 1.9	1.0 - 1.7	58 - 69	0.95 - 1.5
	Average	0.030	1.7	1.7	1.4	64	1.2
J Ave. Distribution Area	Range	NA	1.3 - 1.9	1.5 - 1.8	1.1 - 1.7	55 - 69	0.94 - 1.5
	Average	NA	1.7	1.7	1.5	63.5	1.2
NW Treatment Plant	Range	ND - 0.078	1.4 - 1.9	1.6 - 2.1	ND - 1.3	69 - 75	1.1 - 1.2
	Average	0.038	1.6	1.8	0.88	73.3	1.2
NW Plant Distribution Area	Range	NA	1.3 - 1.8	1.5 - 2.0	1.1 - 1.6	63 - 70	1.1 - 1.3
	Average	NA	1.6	1.7	1.5	66	1.2
	MCL	NA	NA	100	NA	NA	NA
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L

NO CURRENT REGULATORY MCL - EPA Mandatory sampling and Analysis to determine contaminate occurrence nationally and establish regulatory MCL's.

ACRONYMS

AVG: Average
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: Picocuries per liter
MCL: Maximum Contaminant Level
MCLG: Maximum Contaminant Level Goal
NA: Not Applicable
NTU: Nephelometric Turbidity Unit
MRDLG: Maximum Residual Disinfection Level Goal

Source Water

Source Water Assessment Information: This water supply obtains its water from the sand and gravel of the Alluvial aquifer of the Cedar River. The Alluvial aquifer was determined to be highly susceptible to contamination because the aquifer characteristics and the overlying materials provide little protection from contamination at the land surface. The Alluvial wells will be highly susceptible to surface contaminants such as leaking underground storage tanks, contaminant spills, and excess fertilizer application. A detailed evaluation of the source water supply was completed by the IDNR, and is available by contacting the public water supply at 319-286-5975. *Information about work being done to help minimize contamination of the source water supply can be found at www.cityofcr.com/mcpp.*

	Lead µg/L	Nitrate mg/L	Arsenic µg/L	Total Coliform cfu/100ml	E.coli cfu/100ml	Copper µg/L	Zinc µg/L	Manganese µg/L	Iron µg/L	Sodium mg/L	TOC mg/L
2015 Annual Average	ND	4.0	1.15	720	<1	2.8	1.0	214.9	65.1	11.9	2.10
2016 Annual Average	ND	5.5	3.05	33	<1	6.8	2.1	166.0	63.4	9.2	2.56
2017 Annual Average	0.37	4	1.25	65	<1	8.8	4.4	170.3	110.6	9.5	1.94

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.

Frequently Asked Questions

What is the hardness of Cedar Rapids water?
Cedar Rapids water is considered moderately hard, with values of 6-8 grains per gallon or 100-140 mg/L total hardness as calcium carbonate.

What is the fluoride concentration and why is it added?
Fluoride is added during the treatment process to help prevent dental cavities. The optimal concentration is maintained at 0.7 parts per million (ppm) with a range of 0.6-0.9 ppm as recommended by the U.S. Department of Health and Human Services.

My toilet tank and inside of my dishwasher are stained dark brown to black. Is my water safe to drink?
The dark staining is likely due to the corrosion-control chemical added during treatment. Its purpose is to lay a protective coating on the insides of pipes so water never comes in contact with the pipe, thereby reducing the risk of dissolving lead or copper into the drinking water. It has been tested extensively and no health or safety concerns have been identified.

My water throughout the entire house tastes and smells musty or stale. Is it OK to drink?
Sometimes in low-use areas or dead-end main areas, the water does not get circulated as it should. Where this is the case, the distribution crew can be notified to flush hydrants in the area to help bring in fresh water.

What should I expect if my water is shut off due to a water main break?
Water main breaks are often indicated by a lack of water at the tap or water bubbling to the surface of neighborhood streets. This may prompt a water service disruption to your home or business.

Repair crews attempt to reach all homes, businesses, and apartments prior to shutting off water, except under emergency situations. The crews leave an information sheet (door hanger) at the property which explains what to do if water is shut off. It generally takes repair crews 8-12 hours to fix a break and restore water service. If air or particles are coming out of your drinking tap, run water for several minutes to flush the line.

In most cases, it takes another two days for a bacterial contamination sample to return. If the sample shows no contamination in the water, another information sheet is issued, indicating an All Clear. Information will be posted to the City's website (CityofCR.com) if a precautionary boil advisory notice is issued.

If you receive a precautionary boil advisory notice, follow these steps before consuming tap water: **1)** bring water to a boil; **2)** let water boil rapidly for at least one minute; **3)** allow water to completely cool before consuming; **4)** check City website for advisory status updates, or call Water Customer Service at 319-286-5900.

Glossary

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

Drought: A period of unusually persistent dry weather that persists long enough to cause serious problems such as crop damage and/or water supply shortages.

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

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

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

Immunocompromised: 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 a 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.

Radionuclides: Naturally occurring and human-made radionuclides are present throughout the environment. They are found in varying amounts in soil, water, indoor and outdoor air—and even within our bodies—making exposure inevitable. State and Federal regulations establish safe drinking water maximum contaminant levels for a variety of radionuclides. Monitored contaminants include Gross Alpha Radiation, Radium-226, Radium-228, and Combined Radium radionuclides. The existing treatment process does not reduce or remove these contaminants. Except in extreme circumstances, radiation resulting from the ingestion of radionuclides in drinking water is far lower than radiation resulting from other sources of exposure, like radon found in some basements. Radon is a radionuclide classified as an unregulated contaminant. During the aeration treatment stage, radon can be removed from the water source. Additional information about Radon and aeration is included in this report. The concentration of radionuclides found in our water is well within safe regulatory guidelines.

Radon: Radon is a radioactive gas that you can't see, taste or smell. It is found throughout the United States. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also increase the risk of stomach cancer. Radon can build up to high levels in all types of homes. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can also be released into indoor air from tap water when showering, washing dishes, and performing other household activities. A radon level less than 4 picocuries per liter of air (pCi/L) is considered safe. Between 0.0019 – 0.0070 pCi/L of radon may enter the air from City tap water — far less than radon entering homes through the foundation. 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. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy.

For additional information, call your state radon program (800-838-5992) or 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.

Total Organic Carbon (TOC): Amount of carbon found in an organic compound; used as an indicator of water quality.

Revised Total Coliform Rule (RTCR): Revised compliance rule that aims to increase public health protection through reduction of pathways for contamination; find-fix-document.

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 water. Turbidity is a good indicator of treatment filter performance and is regulated as a Treatment Technique.

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