

2017 CONSUMER CONFIDENCE REPORT

A regional publication on quality water and quality service provided by **DES MOINES WATER WORKS**



Water plays a key role in your health and Des Moines Water Works plays a key role in providing **WATER YOU CAN TRUST FOR LIFE**. Supplying approximately 500,000 central Iowans with safe, affordable and abundant drinking water is Des Moines Water Works' mission.

As a regional water utility, Des Moines Water Works' top priority is to ensure customers have a reliable, secure water supply. To achieve that, we responsibly invest in maintenance and upgrades to critical infrastructure that supports or supplies water to the residents of Des Moines and surrounding communities. We closely monitor the water supply to identify and treat contaminants and regularly review

treatment methods and operations for efficiency. Des Moines Water Works' extensive monitoring program allows us to evaluate our ever-challenging source waters and treat them effectively.

In order to ensure drinking water is safe, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. This annual water quality report summarizes information regarding water sources used, any detected contaminants, compliance and educational information.

Des Moines
Water Works

Water You Can Trust for Life

WHERE DOES YOUR WATER COME FROM?

Des Moines Water Works (DMWW) operates three water treatment plants in central Iowa. Each treatment plant involves a multi-barrier approach to ensure the safety of your drinking water. This includes source water monitoring, riverbank filtration, treatment processes of softening, filtration and disinfection, as well as distribution system monitoring and maintenance.

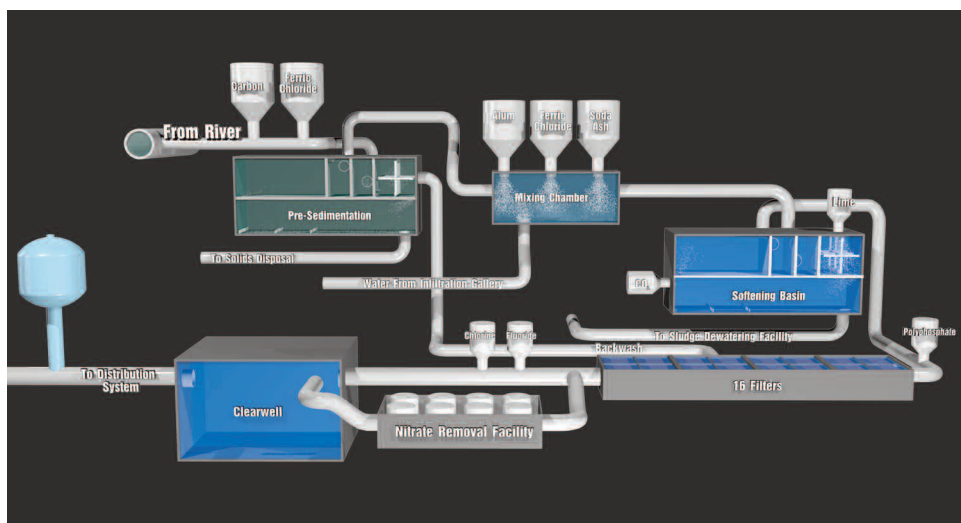
Saylorville Water Treatment Plant, located in northern Polk County, serves water to residents north of Des Moines. This facility treats up to 10 million gallons of water from the Des Moines River and utilizes ultra-filtration and reverse osmosis to soften and treat the water. It is DMWW's first membrane treatment plant and the largest such facility in Iowa.

The **L.D. McMullen Treatment Facility at Maffitt Reservoir**, located southwest of the metro area, treats up to 25 million gallons of water from the Raccoon River, and serves customers in southwest Des Moines, parts of Warren Water District, Waukee, and parts of Clive, Urbandale and West Des Moines. The water is obtained through radial collector wells located horizontally in the coarse sand and gravel formation beneath the river. The shallow groundwater receives natural filtration prior to entry into the wells. The groundwater is pumped to the treatment plant via a series of pipes and pumps that interconnect all six of the wells and the horizontally drilled well. This innovative horizontal well formation was designed and constructed by DMWW staff.

All other areas in Des Moines Water Works' service area receive water from the **Fleur Drive Treatment Plant**. This plant treats up to 75 million gallons of water pumped from one of three sources: Raccoon River, Des Moines River and an infiltration gallery (a series of underground pipes located throughout Water Works Park next to the Raccoon River).

DMWW's chemists and microbiologist test source water daily to determine the best option. They also test throughout the treatment process and finished drinking water every day to ensure that it is a healthy and safe product.

Once treated, there are more than 1,300 miles of underground water mains distributing water to homes and businesses in Des Moines and surrounding communities.



Treatment process at Des Moines Water Works Fleur Drive Treatment Plant

SOURCE WATER ASSESSMENT

Des Moines Water Works obtains water from one or more surface waters. Surface water sources are susceptible to sources of contamination or pollution within the Raccoon and Des Moines River watersheds.

Surface Water Name	Susceptibility
Crystal Lake	High
Des Moines River	High
Maffitt Reservoir	High
Raccoon River	High

Water is also obtained from aquifers. The **Alluvial Aquifer** was determined to be highly susceptible to contaminations because the characteristics of the aquifer and overlying materials provide little protection from contamination at the land surface. The Alluvial wells will be highly susceptible to surface contamination such as leaking underground storage tanks, contaminant spills, and excess fertilizer application.

The **Cambrian-Ordovician Aquifer** was determined to have low susceptibility to contamination because the characteristics of the aquifer and overlying materials provide natural protection from contaminants at the land surface.

Des Moines Water Works completed a **Source Water Assessment** in 2001. To obtain a copy of the assessment, call (515) 283-8700 to request a printed copy.

To see a video of the treatment process, visit:
www.dmww.com/education/education-resources/video

2016 WATER QUALITY RESULTS

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring material and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or humans. Contaminants that may be present in source water include:

Inorganic Contaminants such as salts and metals, which can occur naturally or come from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Organic Chemicals including synthetic and volatile organic chemicals, which are agriculture, industrial and petroleum process byproducts and can also come from gas stations, urban stormwater runoff and septic systems.

Microorganisms such as viruses and bacteria, which may come from agricultural livestock operations, sewage treatment plants, septic systems and wildlife.

Pesticides and Herbicides which may come from agriculture and urban stormwater runoff.

Radioactive Contaminants which can occur naturally or result from oil and gas production and mining activities.

Water Treatment Plant Monitoring

Before water can be delivered to your home, it must first be analyzed by certified laboratories at Des Moines Water Works' Fleur Drive Treatment Plant and at the University of Iowa Hygienic Laboratory in Iowa City. Results for 2016 in this report include samples taken as water leaves Des Moines Water Works' three treatment plants and from samples obtained from the various water distribution systems supplied with water by Des Moines Water Works.

2016 LAB TEST RESULTS	UNITS	MCL	MCLG	Fleur Drive Treatment Plant			L.D. McMullen Water Treatment Facility			Saylorville Water Treatment Plant			COMMON SOURCES OF CONTAMINANT
				YEAR TESTED	LEVEL FOUND	RANGE OF DETECTIONS	YEAR TESTED	LEVEL FOUND	RANGE OF DETECTIONS	YEAR TESTED	LEVEL FOUND	RANGE OF DETECTIONS	
WATER CLARITY													
Turbidity	NTU	TT	NA	2016	0.13	0-0.13	2016	0.10	0.02-0.10	2016	0.22	0.01-0.22	Soil runoff
ORGANIC SUBSTANCES													
Atrazine	µg/L	3	3	2016	<0.1	NA	2016	<0.1	NA	2016	<0.1	NA	Agrotoxin
Cis-1,2 Dichloroethylene	µg/L	70	70	2016	0.9	<0.5-0.9	2016	<0.5	NA	2016	<0.5	NA	Discharge from industrial chemical factories
Di(2-ethylhexyl)adipate	µg/L	400	400	2016	<0.6	NA	2016	<0.6	NA	2016	<0.6	NA	Discharge from rubber and chemical factories
INORGANIC SUBSTANCES													
Barium	mg/L	2	2	2012	<0.05	NA	2012	<0.05	NA	2011	0.1	NA	Discharge from drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride	mg/L	4	4	2016	0.74	0.36-0.9	2016	0.74	0.34-0.91	2016	0.61	0.11-0.88	Additive for strong teeth; erosion of natural deposits; discharge from fertilizer factories
Nitrate [as N]	mg/L	10	10	2016	9.14	2.33-9.14	2016	9.5	1.59-9.5	2016	6.77	0.34-6.77	Agrotoxin; leaching from septic tanks; sewage; erosion of natural deposits
Sodium	mg/L	NA	NA	2016	13.51	NA	2016	10.33	NA	2016	11.93	NA	Erosion of natural deposits
RADIOACTIVE SUBSTANCES													
Alpha Emitters	pCi/L	15	NA	2012	1.6	NA	2009	<1.1	NA	2011	<1.3	NA	Erosion of natural deposits
Combined Radium	pCi/L	15	NA	2009	<1.0	NA	2012	<1.0	NA	2011	<1.0	NA	Erosion of natural deposits
				YEAR TESTED	ANNUAL REMOVAL RATIO	MINIMUM REMOVAL REQUIREMENT	YEAR TESTED	ANNUAL REMOVAL RATIO	MINIMUM REMOVAL REQUIREMENT	YEAR TESTED	ANNUAL REMOVAL RATIO	MINIMUM REMOVAL REQUIREMENT	COMMON SOURCES OF CONTAMINANT
TREATMENT PLANT													
Total Organic Carbon	mg/L	TT	NA	2016	1.86	1	2016	2.22	1	2016	2.6	1	Naturally present in the environment

DES MOINES WATER WORKS AND THE CITY OF ANKENY operate Aquifer Storage and Recovery (ASR) wells. Treated drinking water is injected into wells during cold-weather months, and recovered for use during warm-weather months to help limit the use of poor quality source water and meet customer demand. Testing data unique to this water can be seen on the chart below.

2016 LAB TEST RESULTS	UNITS	MCL	MCLG	Louise P. Moon Well			L.D. McMullen Facility Well			Ankeny Well 4			Ankeny Well 6			COMMON SOURCES OF CONTAMINANT
				YEAR TESTED	LEVEL FOUND	RANGE OF DETECTIONS	YEAR TESTED	LEVEL FOUND	RANGE OF DETECTIONS	YEAR TESTED	LEVEL FOUND	RANGE OF DETECTIONS	YEAR TESTED	LEVEL FOUND	RANGE OF DETECTIONS	
Alpha Emitters	pCi/L	15	NA	2009	ND	NA	2009	ND	NA	2010	2	NA	2011	3.1	NA	Erosion of natural deposits
Arsenic	µg/L	10	NA	2016	ND	NA	2016	ND	NA	2013	1	NA	2011	1	NA	Erosion of natural deposits
Atrazine	µg/L	3	3	2016	ND	NA	2016	ND	NA	2013	ND	NA	2010	ND	NA	Agrotoxin
Combined Radium	pCi/L	5	0	2009	ND	NA	2009	ND	NA	2013	ND	NA	2011	1	NA	Erosion of natural deposits
Di (2-ethylhexyl) phthalate	µg/L	400	400	2015	ND	NA	2016	ND	NA	2010	ND	NA	2010	ND	NA	Discharge from rubber and chemical factories
Fluoride	mg/L	4	4	2016	1.74	0.21-1.74	2016	0.67	NA	2013	1.01	NA	2011	0.69	NA	Additive for strong teeth; erosion of natural deposits; discharge from fertilizer factories
Nitrate [as N]	mg/L	10	10	2016	7.51	4.19-7.51	2016	8.08	2.34-8.08	2016	2.53	0.76-2.53	2016	3.59	3.08-3.59	Agrotoxin leaching from septic tanks; sewage; erosion of natural deposits
Sodium	mg/L	NA	NA	2016	48.56	NA	2016	18.84	NA	2016	39	NA	2014	48	NA	Erosion of natural deposits

Water Distribution System Monitoring

Once the water leaves Des Moines Water Works' water treatment facilities, it is regularly monitored throughout the numerous distribution systems served by Des Moines Water Works for disinfectant, disinfectant byproducts, bacteria, lead and copper. The table below shows the results of this monitoring.

2016 DISTRIBUTION RESULTS	Total Trihalomethanes (TTHM) (µg/L)		Haloacetic Acids (HAA5) (µg/L)		Lead (µg/L)		Copper (mg/L)		Coliform Bacteria (positive)		Chlorine Disinfectant (mg/L)			
	Level Found	Range of Detections	Level Found	Range of Detections	Year Tested	90% of Samples Below Action Level	Range of Detections	Year Tested	90% of Samples Below Action Level	Range of Detections	Monthly Samples	Positive Samples	Running Annual Average	Range
	Byproducts of chlorination MCL: 80 µg/L MCLG: no limit set		Byproducts of chlorination MCL: 60 µg/L MCLG: no limit set		From plumbing corrosion 90% of all samples must be below Action Level of 15 µg/L		From plumbing corrosion 90% of all samples must be below Action Level of 1.3 mg/L		Naturally present in the environment No more than 5% of monthly samples can be positive		Added to prevent bacterial growth Maximum limit for annual average: 4 mg/L			
Des Moines*	52	37-60	10	7-13	2014	ND	ND	2014	ND	ND-0.5	151	0	1	0.12-2.8
Ankeny	44	26-55	6	ND-9	2015	ND	ND	2015	0.04	ND-0.06	60	0	0.9	0.24-1.65
Bondurant	39	28-50	13	6-22	2015	2.6	ND-36	2015	0.0181	ND-0.0342	6	0	2.2	1.82-2.51
Clive	48	36-64	11	9-12	2016	ND	ND-20 ¹	2016	ND	ND	15	0	1	0.3-1.39
Cumming	54	41-61	9	8-10	2015	ND	ND	2015	0.02	ND-0.030	1	0	0.5	0.18-0.83
East Dallas Water	22 ²	NA	11 ²	NA	2015	ND	ND	2015	0.010	ND-0.02	1	0	2	1.54-2.2
Earlham	25	NA	ND	NA	2014	ND	ND	2014	ND	ND	2	0	2	1.54-2.66
Johnston	56	53-58	21	13-30	2015	1.2	ND-14	2015	0.0222	ND-0.0432	20	1 ³	0.8	0.02-2.05
New Virginia	39	39-39	10	10-10	2016	ND	ND	2016	ND	ND	1	0	2.2	1.7-2.7
Norwalk	48	34-55	10	9-10	2016	ND	ND-60 ¹	2016	0.03	ND-0.21	10	1 ⁴	0.9	0.47-1.3
SE Polk Rural Water**	47	34-68	9	8-11	2015	10	ND-10	2015	0.04	ND-0.04	7	0	0.8	0.26-1.21
Urbandale	51	41-60	9	6-13	2015	ND	ND-10	2015	0.02	ND-0.04	40	0	0.8	0.46-1.54
Warren Water District	37	25-53	5	ND-11	2014	ND	ND-10	2014	0.03	ND-0.06	20	0	2.42	1.1-3.1
Waukee	57	49-68	11	8-14	2015	10	ND-160 ¹	2015	0.04	ND-0.038	15	0	0.9	0.39-1.29

* Includes water supplied to Alleman, Berwick, Pleasant Hill, Polk County Rural Water District #1, and Windsor Heights ** Includes water supplied to Runnells and eastern portions of Pleasant Hill. ¹ One sample exceeded the AL of 15 µg/L.

² Monitoring violation for late collection of TTHM and HAA5. ³ One sample in October tested positive for total coliforms. Repeat samples indicated coliform bacteria were not present, and the water was determined to be safe for consumption.

⁴ One sample in November tested positive for total coliforms. Repeat samples indicated coliform bacteria were not present, and the water was determined to be safe for consumption.

DEFINITIONS AND ABBREVIATIONS

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

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

Level Found The highest amount found in the water or the average of all samples analyzed, depending on the regulation. If multiple samples were tested in 2016, the lowest and highest detected values are listed under Range of Detections.

mg/L Milligrams per liter, or parts per million (**ppm**). Parts of contaminant per million parts of water. One part per million is equivalent to a single penny in ten thousand dollars.

MCL The maximum contaminant level, the highest level of a substance allowed in drinking water.

MCLG The MCL Goal, the level of a substance where there is no known or expected health risk. MCLGs allow for a margin of safety. MCLs are set as close to MCLGs as feasible using the best available treatment processes.

LRAA Locational running annual average.

NA Not applicable.

ND Not detected.

ng/L Nanograms per liter.

NTU Nephelometric turbidity units.

pCi/L Picocuries per liter, a measure of radioactivity.

TT Treatment technology. Certain treatment processes are required to reduce the level of turbidity in the drinking water. Turbidity must not ever exceed 1 NTU, and must be less than 0.3 NTU 95% of the time.

Turbidity Turbidity is a measure of cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

µg/L Micrograms per liter, or parts per billion (**ppb**). Parts of contaminant per billion parts of water. One part per billion is equivalent to a single penny in ten million dollars.

DRINKING WATER AND HEALTH INFORMATION

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.

Some people may be more vulnerable to contaminants in drinking water than the general population. 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 from their health care providers about drinking water. Information about contaminants and potential health effects can be obtained by contacting the **Safe Drinking Water Hotline**.

EPA Safe Drinking Water Hotline
(800) 426-4791 or <http://water.epa.gov/drink>

Nitrate

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 groundwater conditions and agricultural activity. Des Moines Water Works uses a variety of strategies to keep the treated tap water below 10 ppm. These strategies include source water blending, and if necessary, removal of nitrate using a treatment process known as ion exchange. Ion exchange is an expensive water treatment technology used only in extraordinary situations when nitrate or other pollution is particularly threatening. Despite recent nitrate levels in the Raccoon and Des Moines Rivers, Des Moines Water Works' treated water has not exceeded the 10 ppm standard since nitrate removal was implemented in 1992. If you are caring for an infant, you should ask for advice from your healthcare provider.

Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Des Moines Water Works minimizes the potential for exposure to lead in drinking water by following a corrosion control program approved by the Iowa Department of Natural Resources. Lead in drinking water is primarily from materials and components associated with private service lines and home plumbing. When your water has been sitting for several hours, you can further 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 are available from the **Safe Drinking Water Hotline**.

Cryptosporidium

The EPA and Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the **Safe Drinking Water Hotline**

PUBLIC MEETING AND UTILITY CONTACT INFORMATION

CITY OF ALLEMAN

2nd Monday of the month at 7:00 pm
Alleman City Council
14000 NE 6th Street · Alleman, IA 50007
Kathleen Larson, City Clerk
(515) 685-3666

Des Moines Water Works Customer Service
(515) 283-8700 · customerservice@dmww.com

CITY OF ANKENY

1st & 3rd Monday of each month at 5:30 pm
Ankeny City Hall
410 West 1st Street · Ankeny, IA 50023
Customer Service
220 West 1st Street · Ankeny, IA 50023
(515) 963-3565 · customerservice@ankenyiowa.gov

BERWICK WATER ASSOCIATION

Annual meeting and as needed
5825 NE Berwick Drive · Berwick, IA 50032
Des Moines Water Works Customer Service
(515) 283-8700 · customerservice@dmww.com

CITY OF BONDURANT

1st & 3rd Monday of each month at 6:00 pm
Bondurant City Hall
200 2nd Street NE · Bondurant, IA 50035
Patrick F. Collison
(515) 971-6856 · pcollison@cityofbondurant.com

CITY OF CLIVE

2nd & 4th Thursday of each month at 6:00 pm
Clive City Hall
1900 NW 114th Street · Clive, IA 50325
Jeff May, Public Works Director
2123 NW 111th Street · Clive, IA 50325
(515) 223-6231 · jmay@cityofclive.com

CITY OF CUMMING

2nd & 4th Monday each month at 7:00 pm
Cumming City Hall
649 N 43rd Street · Cumming, IA 50061
Rachelle Swisher, City Clerk
P.O. Box 100 · Cumming, IA 50061
(515) 981-9214 · cityclerk@cumming-iowa.com
Des Moines Water Works Customer Service
(515) 283-8700 · customerservice@dmww.com

DES MOINES WATER WORKS

4th Tuesday of each month at 3:30 pm
Des Moines Water Works
2201 George Flagg Parkway · Des Moines, IA 50321
Des Moines Water Works Customer Service
(515) 283-8700 · customerservice@dmww.com

CITY OF EARLHAM

2nd Monday of each month at 7:00 pm
Earlham City Hall
140 South Chestnut Avenue · Earlham, IA 50072
Gary Coffman, Public Works Supervisor
(515) 758-2281 · earlhamcityhall@mchsi.com

CITY OF JOHNSTON

1st & 3rd Monday of each month at 7:00 pm
Johnston City Hall
6221 Merle Hay Road · Johnston, IA 50131
Shane Kinsey
P.O. Box 410 · Johnston, IA 50131
(515) 278-0822 · skinsey@cityofjohnston.com

NEW VIRGINIA WATER WORKS

1st Saturday of each month at 7:30 am
Fire Station meeting room
506 West Street · New Virginia, IA 50210
Brent Baughman, City Clerk
506 West Street · New Virginia, IA 50210
(641) 449-3492 · cityclerk@newvirginia.com

CITY OF NORWALK

1st & 3rd Thursday of each month at 6:00 pm
Norwalk City Hall
705 North Avenue · Norwalk, IA 50211
Tim Hoskins, Public Works Director
(515) 981-9527 · thoskins@norwalk.iowa.gov

CITY OF PLEASANT HILL

2nd & 4th Tuesday of each month at 6:30 pm
Pleasant Hill City Hall
5160 Maple Drive, Suite A · Pleasant Hill, IA 50317
Gary Patterson, Public Works Director
(515) 262-9465 · gpatterson@ci.pleasant-hill.ia.us
Des Moines Water Works Customer Service
(515) 283-8700 · customerservice@dmww.com

CITY OF RUNNELLS

2nd Tuesday of each month at 7:00 pm
Runnells City Hall
110 Brown Street · Runnells, IA 50237
Stephanie Herbold, Chief City Clerk
(515) 966-2042
Des Moines Water Works Customer Service
(515) 283-8700 · customerservice@dmww.com

URBANDALE WATER UTILITY

Meets monthly · Call 278-3940 for information
Urbandale Water Utility
3720 86th Street · Urbandale, IA 50322
Dale Acheson, General Manager
(515) 278-3940 · dacheson@urbandalewater.org

WARREN WATER DISTRICT

3rd Monday of each month at 6:00 or 7:00 pm, as posted
Indianola Farm Bureau Office Meeting Room
200 W. 2nd Avenue · Indianola, IA 50125
Stan Ripperger, System Manager
1204 East 2nd Avenue · Indianola, IA 50125
(515) 962-1200 · wwd@warrenwaterdistrict.com

CITY OF WAUKEE

1st & 3rd Monday each month at 5:30 pm
Waukee City Hall
230 W. Hickman Road · Waukee, IA 50263
John Gibson, Public Works Director
(515) 978-7920 · jgibson@waukee.org
Waukee Utility Customer Service
(515) 978-5502 · waukeeutilities@waukee.org

CITY OF WINDSOR HEIGHTS

1st & 3rd Monday each month at 6:00 pm
Windsor Heights City Hall
133 66th Street · Windsor Heights, IA 50324
Elizabeth Hansen, City Administrator
(515) 279-3662
Des Moines Water Works Customer Service
(515) 283-8700 · customerservice@dmww.com

