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.
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.

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.

<table>
<thead>
<tr>
<th>Surface Water Name</th>
<th>Susceptibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystal Lake</td>
<td>High</td>
</tr>
<tr>
<td>Des Moines River</td>
<td>High</td>
</tr>
<tr>
<td>Maffitt Reservoir</td>
<td>High</td>
</tr>
<tr>
<td>Raccoon River</td>
<td>High</td>
</tr>
</tbody>
</table>

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.
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 wastewater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

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

**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.

**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.

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### 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

<table>
<thead>
<tr>
<th>CONTAMINANT</th>
<th>UNITS</th>
<th>MCL</th>
<th>MCLG</th>
<th>Tested</th>
<th>Found</th>
<th>Detection Range</th>
<th>COMPLIANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluoride</strong></td>
<td>mg/L</td>
<td>44</td>
<td>N/A</td>
<td>2016</td>
<td>1.74</td>
<td>0.36-1.74</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td><strong>Nitrate</strong></td>
<td>mg/L</td>
<td>10</td>
<td>N/A</td>
<td>2016</td>
<td>9.14</td>
<td>2.33-9.14</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td><strong>Barium</strong></td>
<td>mg/L</td>
<td>22</td>
<td>N/A</td>
<td>2012</td>
<td>&lt;0.05</td>
<td>&lt;0.05-0.25</td>
<td>Discharge from metal refineries; corrosion</td>
</tr>
<tr>
<td><strong>Chloride</strong></td>
<td>mg/L</td>
<td>N/A</td>
<td>N/A</td>
<td>2016</td>
<td>48.56</td>
<td>28.08-48.56</td>
<td>Erosion of natural deposits</td>
</tr>
</tbody>
</table>

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### 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

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Clive</td>
<td>36-64</td>
<td>10-12</td>
<td>9</td>
<td>0-11</td>
<td>2015</td>
<td>ND</td>
<td>ND</td>
<td>2016</td>
<td>ND</td>
<td>ND</td>
<td>2017</td>
<td>ND</td>
<td>ND</td>
<td>2018</td>
</tr>
<tr>
<td>Cumming</td>
<td>52</td>
<td>41-61</td>
<td>9</td>
<td>8-10</td>
<td>2015</td>
<td>ND</td>
<td>ND</td>
<td>2016</td>
<td>ND</td>
<td>ND</td>
<td>2017</td>
<td>ND</td>
<td>ND</td>
<td>2018</td>
</tr>
<tr>
<td>Earlham</td>
<td>52</td>
<td>35-60</td>
<td>10</td>
<td>7-10</td>
<td>2015</td>
<td>ND</td>
<td>ND</td>
<td>2016</td>
<td>ND</td>
<td>ND</td>
<td>2017</td>
<td>ND</td>
<td>ND</td>
<td>2018</td>
</tr>
<tr>
<td>Norwalk</td>
<td>56</td>
<td>25-60</td>
<td>10</td>
<td>8-10</td>
<td>2015</td>
<td>ND</td>
<td>ND</td>
<td>2016</td>
<td>ND</td>
<td>ND</td>
<td>2017</td>
<td>ND</td>
<td>ND</td>
<td>2018</td>
</tr>
<tr>
<td>Urbandale</td>
<td>51</td>
<td>41-60</td>
<td>9</td>
<td>6-13</td>
<td>2015</td>
<td>ND</td>
<td>ND</td>
<td>2016</td>
<td>ND</td>
<td>ND</td>
<td>2017</td>
<td>ND</td>
<td>ND</td>
<td>2018</td>
</tr>
</tbody>
</table>

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*Includes water supplied to Beaver, Berwick, Pleasant Hill, Polk County Rural Water District #1, and Windor Heights. *Includes water supplied to Fluorescent and eastern portions of Pleasant Hill. *One sample exceeded the AL of 15 µg/L. *Monitoring violation for late collection of TTHM and HAA5. *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. *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. *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. *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. *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. *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. *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. *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. *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. *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. *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.

**n/A** 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.

**LRAA** Locational running annual average.

**N/A** Not applicable.

**ND** Not detected.

**ng/L** Nanograms per liter.

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

**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.

**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.
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

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) 282-9465 • 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) 866-2042
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