DMWW Service Area

- Largest drinking water utility in Iowa
- 600,000 customers / one-fifth of Iowa’s population
- Urban
- Suburban
- Rural
- Serves six of the 10 fastest-growing cities in Iowa
We are Unique.

- Fleur Drive
  - Infiltration Gallery
  - Raccoon River
  - Des Moines River
- McMullen
  - Raccoon River Alluvial Wells
  - Maffitt Reservoir
  - Off River Storage
- Saylorville
  - Des Moines River Alluvial Wells
DMWW Source Watersheds

Raccoon River Watershed

Des Moines River Watershed
IOWA IS AN AGRICULTURAL STATE
CHEMICAL APPLICATION
Confined Animal Feeding Operations Have Large Impact
MANURE APPLICATION
TILE DRAINAGE
Intensive Ag Tile Drainage in Upper Midwest

Subsurface “tile” drainage is concentrated in the Midwest.

Percent of acres tile drained
- 0-1%
- >55%

Source: World Resource Institute
Iowa Drainage Districts
DMWW Source Watersheds

Des Moines River Watershed

Raccoon River Watershed
Drainage on an Industrial Scale

Hardin County, Iowa
Drainage on an Industrial Scale

Sac County, Iowa
Conservation Adoption

Percent of land in farms rented, 2017

Statewide = 51%

Source: 2017 USDA Census of Agriculture
1.8 billion pounds of nitrogen have flowed past our Fleur Drive Treatment Plant since 1974. That's 900,000 tons.

<table>
<thead>
<tr>
<th>Year</th>
<th>Nitrogen Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>57,959 tons</td>
</tr>
<tr>
<td>2016</td>
<td>38,387 tons</td>
</tr>
<tr>
<td>2017</td>
<td>19,938 tons</td>
</tr>
<tr>
<td>2018</td>
<td>29,326 tons</td>
</tr>
<tr>
<td>2019</td>
<td>24,496 tons</td>
</tr>
</tbody>
</table>

Monthly Nitrate Concentrations 1974 - June 2022
Saylorville Reservoir Upstream on the Des Moines River
Des Moines River Microcystin 2015-2022

EPA Drinking Water Health Advisory Level
Nitrate has been the Storm Cloud on the Horizon for Decades

1972: Gulf Hypoxia Zone Recognized
1975: Drinking water regulatory standard for nitrate established

1980s - DMWW exceeds regulatory standard for nitrate
1992 – DMWW builds largest nitrate removal facility in the world in order to meet regulatory standard

2000s – Harmful Algal Blooms (HABs) are common-place in U.S. coastal waters, and blooms begin to appear in inland rivers

2014 – Toledo water utility issues a Do Not Drink advisory for toxic microcystin from HABs
2016 – DMWW discovers microcystin in finished drinking water for the first time

2019 – DMWW unable to use Des Moines River for 110 consecutive days because of microcystin levels

2020 - 2nd year in a row: DMWW unable to use Des Moines River for 110 consecutive days because of microcystin levels
We Continue to Build

- Nitrate Removal Facility
- Off-River Storage
- Des Moines River Well Field
WATERSHED PARTNERSHIPS
Thank you for your time today.
Questions?