

# CITY OF BISMARCK WATER TREATMENT PLANT



## DID YOU KNOW?



### ABOUT THE TREATMENT PLANT

- The City takes its water from the Missouri River
- The water treatment plant has a staff of 14
- The current capacity of the water treatment plant is 30+ million gallons per day (MGD)
- Provides water to 21,000+ metered connections
- Average daily production was 9.97 MGD (2015)
- Maximum daily production was 24.72 MGD (2015)
- Total water produced was 3.64 billion gallons (2015)

The City also supplies water to the South Central Regional Water District and the City of Lincoln which use an average of approximately 0.30 MGD each.



### ABOUT THE SYSTEM

The water distribution system is an elaborate network consisting of:

- 360 miles of water pipe ranging in diameter from 3 - 42 inches
- 4,400 hydrants
- 6,200 valves
- 4 pump stations
- 4 sites consisting of 8 underground reservoirs and 3 elevated tanks that provide approximately 22 million gallons of water storage



# WATER TREATMENT PLANT PROCESS

The City of Bismarck has **2 water sources** that supply water to the Water Treatment Plant.

The **Horizontal Collector Well** located south of the Water Treatment Plant on the Missouri River.



The **original intake structure** that pulls water directly from the Missouri River.



PRETREATMENT /  
CLARIFICATION

1



- Blanket clarifier
- Treatment capacity 13 MGD
- Removes suspended solids



SOFTENING

2



- Lime softening solids contact basin
- Design capacity 30 MGD (3 basins)
- Removes hardness



DISINFECTION /  
STABILIZATION

3



- Primary - Chlorine
- Secondary - Chloramines



- Carbon dioxide pH adjustment



FILTRATION

4



- Rapid sand filter (anthracite and sand)
- 14 filters (single and dual bays)
- Removes fine suspended solids



RESIDUAL  
MANAGEMENT



- Gravity thickener and plate & frame presses
- 140 loads per month (average); 41.6 million lbs. per year (2015)
- Residuals management (solids removal)



DISTRIBUTION

5



- Series of pumps, reservoirs, and elevated storage to provide service to 5 pressure zones