

Wastewater Treatment Plant History

1961

Originally constructed in 1961, the Wastewater Treatment Plant (WWTP) consisted of the following processes: preliminary treatment, primary settling and anaerobic digestion of primary sludge. The bar screens and the primary clarifiers comprising the 1961 plant are referred to as the North plant.

1978

In 1978, the WWTP was upgraded with the addition of a duplicate system of mechanical bar screens, grit removal and primary treatment; such additions are known collectively as the South plant. Additional anaerobic digesters, disk/nozzle centrifuges for sludge thickening, storage lagoons, and a secondary activated sludge process were added to the treatment process also. At the time of the 1978 plant upgrade, the secondary treatment train consisted of primary effluent pumping, aeration using centrifugal blowers and synthetic fabric diffuser tubes, secondary clarification, and return activated sludge pumping.

1985

In 1985, three additional centrifugal blowers were added to the secondary system in order to reduce the overall power consumption for the aeration system during periods of lower oxygen demand.

1988

In 1988, the disk/nozzle centrifuges were replaced with gravity belt thickeners for WAS sludge thickening. In addition, a polymer feed system for the gravity belt thickeners, miscellaneous pumping, HVAC, and electrical improvements were installed.

1999

In 1999, a major upgrade to the WWTP was completed and included the following items:

- Replacement of all primary digester covers, including new gas safety equipment and liquid level monitoring equipment.
- Replacement of one secondary digester cover, including new gas safety equipment and liquid level monitoring equipment.
- Addition of draft tube mixers for each of the primary digesters.
- Construction of a new sludge transfer line for primary and WAS sludge to the primary digesters.
- Replacement of bar screens at the headworks of the WWTP.
- Installation of a non-potable water system.

2006

In 2006, the City of Sioux City began a \$31.8 million plant rehabilitation project. The following improvements were included:

- New Headworks building, including bar screens, grit removal, septage dumping station, belt filter presses, sludge storage silo, polymer system, boilers for building heat, and an odor control system.

- Rehabilitation of the North primary clarifiers, including an odor control system and covers.
- The addition of two air basins and the modification of existing to a MLE activated sludge process.
- The addition of a secondary clarifier and rehabilitation of the existing.
- A new sodium hypochlorite disinfection building, including sodium bisulfite for dechlorination of effluent prior to discharge to the Missouri River.
- ADA and Code compliance renovations to the Administration Building.