

Flygt jet aeration solution lowers costs and improves safety

The wastewater treatment plant in the town of Biggar, located 93 kilometers west of Saskatoon in central Canada, was having a number of problems with its jet aeration system. After installing Flygt jet aerators from Xylem, the plant has now reduced maintenance costs, lowered energy use and improved safety.

In 1990, the town of Biggar upgraded its wastewater treatment plant by adding a second aeration basin, known as an oxidation ditch, measuring 56 meters long.

The oxidation ditch is a settling basin where wastewater is mixed with biologically activated sludge to create particles that will settle and can be easily removed. This is a crucial step in the wastewater treatment process because it removes the majority of pollutants.

In 2001, the degradation of the aeration system became very noticeable to plant operators. The plant began experiencing high maintenance and energy costs when trying to maintain the appropriate oxygen levels in the oxidation ditch.

Sludge also began to build up on the bottom of the oxidation ditch, and constant monitoring was required for increased foaming and spray issues. Additionally, when servicing the aerators maintenance crews had to walk on catwalks where they were exposed to liquid waste, which caused safety concerns.

The town decided to investigate alternative wastewater treatment solutions to improve safety, lower energy costs and reduce time spent on maintenance.

Better oxygen levels and improved mixing

Xylem was asked by Catterall & Wright Engineering, the engineering firm commissioned to design the upgrades at the Biggar plant, to supply an aeration system designed to meet the required oxygen levels and provide sufficient mixing to keep the sludge from building up on the bottom of the oxidation ditch. Ease of installation and maintenance were placed as high priorities for all plant upgrades.



Town of Biggar in Saskatoon, SK

“... very pleased with the reduction in foaming and the low maintenance this aeration system has shown”

Xylem proposed a Flygt jet aerator system. The Flygt JA317 jet aerator, comprised of a Flygt submersible N-pump, air suction pipe and three ejectors, not only could supply the needed oxygen level, but also required little maintenance.

To eliminate safety issues, the submersible pump is designed to rest on the bottom of the tank to significantly reduce spray, surface foaming, vibration and noise levels. As the pump propels water through the ejectors, a Venturi vacuum effect is created by pulling air down through the air suction pipe then mixing with the water passing through the pump. This process provides oxygenation and mixing simultaneously.

Quick installation and less maintenance required

Once the oxidation ditch was shut down and cleaned, two jet aerators were anchored to the bottom of the ditch. The installation of the aeration system and controls was quick and efficient, and from the time the system was installed to being operational took only two weeks.

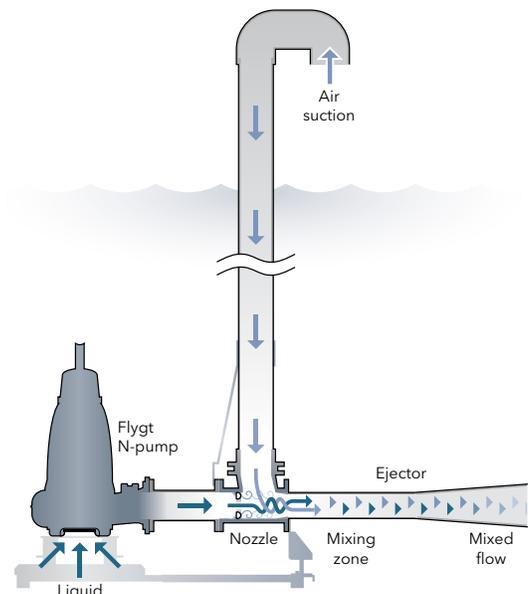
Since the installation in 2010, the Flygt jet aerators have continuously provided the required mixing and oxygenation, while also reducing maintenance and safety concerns.

"I am very pleased with the reduction in foaming and the low maintenance this aeration system has shown," says Town Foreman Richard Olson, who pushed to improve the Biggar plant's aeration system. "It frees up operators at the plant to devote more time to other jobs."

The town of Biggar has since ordered another pair of Flygt jet aerators from Xylem for their second oxidation ditch.



Flygt jet aeration systems are easily installed to provide both oxygenation and mixing



Working principle; The velocity of the water creates air suction which is mixed in the ejector and transferred into the wastewater tank.

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