MOLEAER™
BEYOND AERATION

MOLEAER BOOSTS EFFICIENCY OF MUNICIPAL WASTEWATER TREATMENT SYSTEM

Village of Warrens Municipal Wastewater Treatment Plant

The Village of Warrens treats its municipal wastewater through a 3-ring oxidation ditch system which was aerated with three 7.5 hp surface disk aerators. Historically, these aerators provided sufficient air to meet the oxygen demand of the treatment process. However, in 2016 a new cranberry juice processing plant was commissioned just three miles away from the Warrens treatment facility. The high strength effluent generated by the juice processing plant placed a heavy strain on the city's existing aeration system, rendering the treatment facility unable to supply enough oxygen into the oxidation ditches.

At one point, the Warrens treatment plant became overwhelmed when a heavy wash-down made it impossible to raise the oxygen levels above 0 ppm in any of the ditches, resulting in improper treatment for over a month. The plant operator needed a system that could simply and cost effectively integrate into the existing design with minimal retrofitting and operational maintenance.

Client:	Village of Warrens, Wisconsin (USA)
Type:	Municipal plant - 3-ring oxidation ditch
Flow:	209,000 GPD
Tank Size:	207,000 gallons
Unit Type:	200 XTB with 200 GPM submersible pump
Installed:	November 10, 2016

On November 10, 2016, the Village of Warrens installed the Moleaer 200 XTB Nanobubble Generator™ into the outer ditch of its 3-ring system. Depending on demand, the new generator was able to inject between 6 to 20 pounds of O_2 per hour, significantly increasing the dissolved oxygen right through to the center ditch. Table 1 shows the plant's DO levels before and after the installation of the Moleaer 200 XTB.

Aerial view of 3-ring oxidation ditch system at the Village of Warrens (WI) treatment plant.

Moleaer 200 XTB installed on the outer ditch of the Village of Warrens (WI) treatment plant.

Table 1: Dissolved Oxygen Levels at Village of Warrens Treatment Plant

	Before 200 XTB Installation	After 200 XTB Installation
Outer Ditch	0.11 ppm	3.6 ppm
Middle Ditch	1.2 ppm	7 ppm
Center Ditch	4 ppm	10 ppm

According to plant operators, the most favorable factor of the Moleaer system was the ability to install it within a few hours without the need to hire an external engineering firm. This is especially appealing for small city treatment plants who cannot afford extended and costly disruptions that can sometimes last a few days. For the Village of Warrens, the Moleaer 200 XTB has outperformed their expectations, often delivering more oxygen than needed and enabling operators to easily switch between pure oxygen and air. This feature is especially critical for the Warrens plant when a batch of high-strength water is anticipated - operators simply switch the gas feed over to the oxygen, quickly buffering the ditches with more oxygen to compensate for the higher demand.

The 200 XTB system runs non-stop and the extremely small bubbles have produced no adverse effects to the settleability of the sludge. Sampling has demonstrated that the addition of nanobubbles to the sludge prevents it from turning septic even after aeration has stopped. Plant operators have noted that there appears to be a latent oxygen transfer from the nanobubbles which they expect to have a positive effect on reducing sludge volumes.

The Moleaer 200 XTB aeration system has proven to be a great value for small plants that need to increase capacity but can't afford expensive capital uprades.

www.moleaer.com

Rev. A (03.17)