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CASE STUDY

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A Reliable And Efficient Back-Up Effluent Oxygenation System

Post-treatment Aeration Maintains Dissolved Oxygen in Effluent High-Solids Wastewater Prior to River Discharge

Butler County, OH

The Problem: The LeSourdsville Wastewater Treatment Plant in Butler County, Ohio, was required to meet their NPDES permit requirement of 6 mg/l dissolved oxygen (DO) at the plant's Miami River outfall. During normal operation the dissolved oxygen increase is accomplished in a cascade basin. However, during storm events, the river can rise to levels that completely flood the cascade basin rendering it useless.

The Solution: Mazzei venturi wastewater aeration system was chosen as the Best Available Technology. Due to the confined space in the cascade basin and limited access to the site, a modular drop-in design incorporating a vertical turbine pump, Mazzei Model 12050 venturi injector and Mazzei MTM nozzle manifold were adopted.

The aeration system was designed to provide sufficient oxygen transfer to raise the dissolved oxygen of the plant outfall from 3.5 mg/l to 5.6 mg/l under storm event plant flow conditions of up to 26 MGD.

The Results: A quiet, efficient, reliable back-up emergency aeration system that allows the plant to meet NPDES outfall DO requirements was put into place. During a storm event shortly after installation, the river rose and flooded the cascade basin. The Mazzei post-aeration system maintained the plant outfall DO level below the 5.6 mg/l requirement at flows up to 31 MGD—20% higher than the aeration system's peak design flow level.



*To get a better understanding about how a
[Mazzei venturi wastewater aeration system](#) works, take a look at this animation.*

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