

## Case Study

### Mazzei Injector and Hydro Mechanics Implement a Reliable and Efficient Back-up Effluent Oxygenation System for the Butler County Ohio LeSourdsville WWTP

**The Problem:** The plants NPDES permit specifies a minimum dissolved oxygen of 6 mg/l at the wastewater outfall into the Miami River. During normal operation the dissolved oxygen increase is accomplished in a cascade basin that works very well. However, during storm events, the river can rise to levels that completely flood the cascade basin, rendering it useless.

**The Solution:** Mazzei Airjection<sup>®</sup> system was chosen as the Best Available Technology, and Hydro Mechanics, Cincinnati Ohio, was contracted to supply an integrated System for this post-aeration process. 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 was adopted. The modular/drop-in system was fabricated off site and designed to cantilever from the wall of the cascade basin without modifications to the tank. Installation and start up took only about 4 hours.

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 up to 26 MGD.



**The Result:** A quiet, efficient, reliable back-up emergency aeration system that allows the plant to meet NPDES outfall D.O. requirements. During a storm event in 2004 the river rose and flooded the cascade basin. The Mazzei/Hydro Mechanics post-aeration system maintained the plant outfall D.O. at compliance levels of 5.6 mg/l at flows up to 31 MGD. The post aeration system was able to maintain the outfall compliance dissolved oxygen at plant flows **20 % above design flow.**

