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CASE STUDY

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Venturi Wastewater Aeration

Supplemental Aeration System Reduces High BOD Levels and Solves Odor Issues
Sparta, MI

The Problem: A leading fruit juice company had expanded over a ten year period and increased wastewater flow from 7,000 to 11,000 gallons per day (gpd), without upgrading its wastewater treatment plant. The existing system consisted of an equalization tank, three conventional aeration tanks in series, and four rotating biological contactors (RBC) in parallel. The plant was able to reduce the average daily BOD loading of 9,000 mg/L to acceptable levels; however, the low oxygen levels in the hydraulically overloaded aeration tanks resulted in high levels of hydrogen sulfide, causing odor complaints.

The Solution: Plant personnel chose to add a Mazzei venturi wastewater aeration system in the equalization tank, and all three aeration tanks, rather than upgrading the existing blower/diffuser systems, due to capital equipment and installation costs (it would have been nearly three times the cost to upgrade the prevailing system).

The Results: After the Mazzei system was installed, dissolved oxygen levels increased in the aeration basins, which immediately eliminated the odors. The level of BOD in the aeration basin effluent was so low that three of the four existing RBC trains were no longer required. The system was quickly installed with little downtime to the plant.

These four systems were installed in 2006, and have provided excellent results and trouble-free operation. In 2009, the plant changed operations, mandating that all wastewater be trucked off-site and used in hog-feed production. However, the equalization basin is still used with the Mazzei venturi wastewater aeration system, for odor-free collection of the wastewater until it is taken off-site.

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

