PROJECT HISTORY

F&A Dairy, founded in 1958, began manufacturing cheese at their Dresser, Wisconsin facility in 1974. Five years after the plant’s opening, F&A Dairy constructed an aerated lagoon Waste Water Treatment Plant (WWTP) with land irrigation, employing a static-tube coarse-bubble aeration. The system was originally designed to process approximately 3,000 ppd BOD. The system operated with satisfactory levels of dissolved oxygen for many years.

PROBLEM FACED

By April 2009, F&A Dairy had outgrown its WWTP. With significant increases in production, the static-tube aeration system was unable to deliver sufficient oxygen to the lagoon treatment system. The plant was now processing close to 1 million pounds of milk per day. The 35-year old system was not originally designed to handle such a large load and could not keep up with the plant’s needs.

The original static-tube aeration system was at capacity with all four 50-Hp blowers (3,000 cfm each.) Even at capacity, the system was only able to maintain a dissolved oxygen level of 0.1mg/l which resulted in operational troubles and odors.

For a short-term fix while F&A Dairy searched for a solution, the plant purchased an Ultra V 30 Hp aspirating pump and rented two more powered by a portable diesel generator. This added a 90 Hp load onto the electricity consumption in addition to the four 50Hp blowers powered by a portable diesel generator to handle peak summer conditions.

TESTIMONIAL

“[The plant has] been able to spray irrigate their effluent because their nitrogen concentrations are lower than they have been in the past. That has saved the plant money because they are no longer paying the city to treat their effluent.”

-JONATHAN BUTT, SYMBIONT
CASE STUDY: F&A DAIRY - DRESSER, WI

EDI’S SOLUTION AND OUTCOME

For a permanent solution, F&A Dairy hired Symbiont, a prominent consulting firm located in Milwaukee, WI, to develop a long-term solution. Symbiont specializes in the design of industrial and municipal wastewater treatment facilities. Symbiont studied the plant wastewater and its existing treatment processes in addition to viable aeration system technology. They also evaluated F&A Dairy’s other plant in Las Cruces, NM which already employed EDI’s Floating Lateral System.

After the evaluation was complete, Symbiont recommended employing a fine-bubble aeration system that could be installed without dewatering the existing treatment lagoons, and would provide an energy efficient system to meet the demands of the 1 million lbs/day production.

F&A purchased a fine-bubble aeration system from EDI. The system employed floating HDPE air lateral assemblies with suspended-tubular, fine-bubble, flexible-membrane diffuser assemblies. The system was installed in the summer of 2010 with great success. The new system has reduced power consumption, has been able to handle peak loads, maintain dissolved oxygen and provide operating flexibility.

RESULTS

Before Improvements

- Four 50 Hp Blowers required to provide treatment
- Static Tube Coarse Bubble - Only delivering 0.1mg/l dissolved oxygen
- Odors became present due to insufficient processing with original system

After Improvements

- Two 50 Hp Blowers required to provide treatment
- Floating Lateral Fine Bubble - Steadily delivering 2.0 mg/l dissolved oxygen
- EDI system providing sufficient processing resulting in no odor complaints since 2010