



CLOSING THE LOOP

Aeration Control System Completes Upgrade

February 1992 - ESCOR has successfully completed a software upgrade on the aeration control system at the Oconomowoc, Wis. WWTP. ESCOR's integrated Dissolved Oxygen (DO) and blower control system was installed in 1989 along with fine bubble diffusers and two 75 hp centrifugal blowers. Dick Neterval, Wastewater Treatment Plant Superintendent, was "well satisfied" with the control system.

The Oconomowoc plant uses grit removal and primary clarification prior to conventional activated sludge. The plant influent is a combination of domestic and dairy wastes. The dairy waste causes frequent slug loading of the aeration basins, sometimes in excess of the design organic loading of the plant. The plant is routinely unmanned at night and only partially staffed on weekends.

The 1989 system was part of a retrofit designed by consulting engineers McMahon and Associates as part of a long term energy conservation program at Oconomowoc. Neterval and his staff had tracked energy use at the plant for several years and had incorporated load shedding and similar energy conservation measures. When the plant decided to change from coarse bubble to ceramic fine bubble diffusers Neterval asked to have automatic DO control included.

In addition to improved energy performance and faster recovery from the slug loading, the new equipment solved some other operating problems for the plant. Neterval likes the electric motor operated valves, since the pneumatic operators on the old blower control system caused a lot of problems. The aeration and DO control panel was mounted in the existing main display enclosure and the operators find it convenient to have all the controls and indicators in one spot.

According to Neterval the Enterra DO probes and transmitters are "100% better" than the old brand, which had constant problems with probes and electronics. Now the staff only checks the DO probes once every four to five weeks by comparing the readings with a YSI lab unit. If the measurements differ by more than 1/2 ppm they simply wash the probe in a bucket of water, wipe off the end, air recalibrate and put it back in the basin. Even with the heavy dairy waste loading the membranes only require replacement three times per year.

After the first year of operation Neterval was pleased with the performance of the system. Even though the plant was closely monitored before the retrofit, Neterval said the new system "definitely does a lot better job of controlling DO" He reported that the combined effect of all of the energy conservation efforts was a 38% drop in total plant energy costs, from \$120,000 in 1983 to \$74,000 in 1990.

By 1991 the plant loadings increased and Neterval determined that more air was needed. In order to meet the additional requirements he originally considered replacing one of the new blowers with a larger unit. ESCOR analyzed his system and determined that motor replacement on the existing blower would meet Neterval's objective at a significant savings. The ESCOR control software was upgraded to accommodate the differences in operating characteristics between blowers. At the same time, the program was modified to permit future use of a third blower for standby capacity. The revised software and blowers have been running without problems since start-up. ■

For additional information contact the Oconomowoc WWTP at (414) 569-2192. If you would like more information about ESCOR call Tom Jenkins.