



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



Solutions

Dissolved Oxygen Analyzer

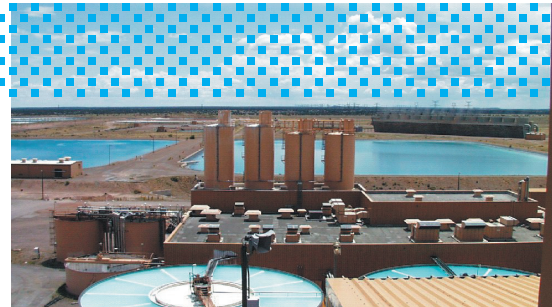
Liquisys M COM 253 with Oxymax W COS 41 sensor reduce maintenance headaches in aeration tank



Wastewater treatment plant



COM 253 analyzer and COS 41 sensor



Typical treatment plant

The COM 253 oxygen analyzer is coupled with a COS 41 dissolved oxygen sensor to control the oxygen content in aeration tanks to ensure aerobic bacteria are kept alive and active.

Company Profile

A local Indiana city operates a wastewater treatment plant with three process stages: Settling, aerobic biological treatment, and filtration

The most critical part of this process is the biological treatment stage where bacteria is used to purify the water. Aerobic bacteria are expensive and care must be taken to ensure that enough air is added to the aeration tanks to keep the bacteria alive and active. Costs are optimized when just enough air is added to the tanks to keep the bacteria active. This precarious balance is controlled via the monitoring of dissolved oxygen (DO) in the aeration tanks.

For years, this plant has used a competitor's dissolved oxygen analyzer and sensor. While the analyzer was fairly easy to set up, the sensor required a great deal of maintenance.

Maintenance headache

The sensor has a motorized assembly to draw water in and keep it moving past the sensor electrodes. Since the electrodes become contaminated with sludge, the motorized assembly includes a wiper and grindstone assembly to keep the electrodes clean.

Every two weeks or less, the sensors need to be pulled from the tanks and cleaned to ensure proper water flow through the sensor. Once a month, a maintenance team had to fully disassemble and clean the sensors. This process, which consumes a half-day per sensor, includes polishing the grindstone as well as cleaning out the system mechanics and electrodes. The sensor grindstone has to be replaced annually, at an approximate cost of \$130 per sensor (excluding labor costs). After replacing the grindstone, a sensor requires 24 hours to stabilize before the system can be recalibrated, adding to the maintenance labor and measurement downtime.

Maintenance breakthrough

During a recent upgrade project, the plant maintenance supervisor sought to improve

the instrumentation used to measure DO in the aeration tanks. He and his maintenance crew were determined to find something that would require far less maintenance. After evaluating various systems, the plant decided on the Endress+Hauser COM 253 analyzer and COS 41 sensor. "While the Endress+Hauser system was more expensive than others we considered, the company's close proximity to our plant and their willingness to install a trial system swayed us in their direction".

In the end, the Endress+Hauser DO system far exceeded their expectations in several ways:

1. Maintenance costs were reduced by 75%. The COS 41 can be cleaned by simply wiping it off on-site, as opposed to removing and tearing down the old system in the instrument shop.
2. When hearing the COS 41 has a membrane, it was thought the sensor would be extremely fragile. After seeing the sensor, the customer found it was as described (like elephant skin), and could handle the tough application.
3. Calibration is simplified, a one-step process that takes less than 15 minutes.

At this point in time, eight Endress+Hauser DO systems have been installed to replace old systems. Even though these replacement systems have only been installed for a few months, the water treatment facility is already reaping the rewards of much fewer maintenance headaches and reduced maintenance costs. The supervisor and his staff look forward to turning their attention to other issues and putting their DO measurement worries behind them.



Endress+Hauser COM 253 Analyzer



Endress+Hauser COS 41 sensor mounted in aeration tank with pendulum holder which provides easy access to wipe sensor membrane

USA

Endress+Hauser, Inc.
2350 Endress Place
Greenwood, IN 46143
Tel. 317-535-7138
Sales 888-ENDRESS
Service 800-642-8737
Fax 317-535-8498
inquiry@us.endress.com
www.us.endress.com

Canada

Endress+Hauser Canada
1075 Sutton Drive
Burlington, ON L7L 5Z8
Tel. 905-681-9292
800-668-3199
Fax 905-681-9444
www.ca.endress.com

Mexico

Endress+Hauser
Paseo del Pedregal No. 610
Col. Jardines del Pedregal
01900, Mexico D.F.
MEXICO
Tel. 525-568-2405
Fax 525-568-7459

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