

## cost-savings using Sievers\* InnovOx On-Line TOC Analyzer monitoring organic breakthrough

### challenge

A production facility in the U.S. Midwest had a breakthrough of sugar into the main condensate collection point. Conductivity and pH were unable to detect this leak. As a result, the plant was shut down for multiple days at significant cost.

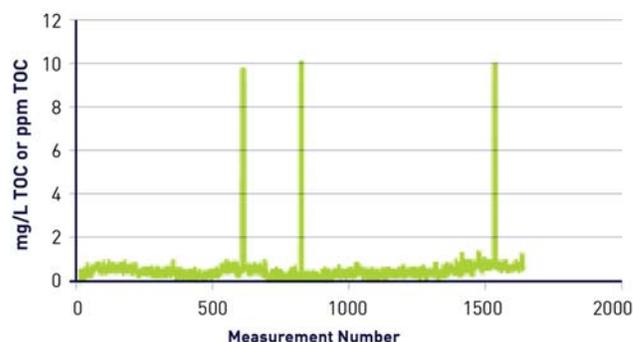
The facility currently controls the threat of sugar breakthrough in its condensate water by simply discharging the condensate to its local utility. The minimum cost associated with the release of this water is \$15,000 USD annually.

### solution

A Sievers InnovOx On-Line TOC Analyzer was installed at the facility to continuously monitor the condensate water. During operation, the company periodically analyzed standards to prove the instrument's ability to see and recover from sucrose breakthrough events. A 10 ppm TOC as sucrose standard was run to demonstrate the instrument's ability to accurately measure the standard and then resume running the normal clean condensate water.

The Sievers InnovOx On-Line gave a TOC value approximately every six minutes. By using the analyzer's I/O output, such as the 4-20mA output or the alarm settings via Modbus, the company would be able to quickly respond to a breakthrough event and avoid potential catastrophic results.

**Figure 1** shows organic monitoring performed on the condensate line. The spikes represent the 10-ppm standard analyzed throughout the test. This demonstrates the instrument's ability to quickly identify and recover from a breakthrough event.



**Figure 1. Organic monitoring performed on the condensate line**

### technology

The Sievers InnovOx On-Line is designed to handle challenging sample matrices. It utilizes ultra-efficient Supercritical Water Oxidation (SCWO) to oxidize organic carbon molecules to CO<sub>2</sub>. The CO<sub>2</sub> is then quantified using non-dispersive infrared (NDIR) detection technology. SCWO ensures a greater than 99% oxidation thus providing superior accuracy and precision.

### conclusion

This project demonstrated that the Sievers InnovOx On-Line can be used to quickly and accurately identify organic contamination. It gave the production facility the ability and confidence to stop unnecessary discharge of high quality water while avoiding organic contamination events. Any facility with a water source threatened by contamination from organics could be monitored in a similar way. The monitoring scenario implemented here can help companies from a wide range of industries avoid unnecessary downtime, poor water quality, and the high costs resulting from organic breakthrough into condensate water.