REAL TECH INC.

WATER QUALITY MONITORING SOLUTIONS

MINNESOTA DAIRY PLANT

Case Study

LOCATION:
Minnesota, USA

SOURCE TYPE:
Industrial Wastewater

PARAMETERS:
BOD, COD

APPLICATIONS:
Product Loss Detection, Wastewater Treatment Optimization

SYSTEM:
Real Dual-Wave Sensor, Real Controller Pro and Dilution System

REAL-TIME BOD/COD MONITORING INCREASES REVENUE FROM PRODUCT RECOVERY

A dairy plant in Minnesota was reliant on daily BOD and COD grab samples for detection of product loss.

This method was inadequate for proper management and the plant required a better solution to meet their needs. Real Tech provided the much-needed real-time information on cream concentration in the wastewater to allow the plant to take action when events or spills occurred and gain an overall better understanding of product loss in their operation.

Real Tech's monitoring system was installed at the equalization tank, where wastewater from the plant's production processes could be monitored directly after coarse screening (Fig 1). A robust system was selected for reliable operation on the plant's untreated wastewater stream which included Real Tech's dual-wave sensor, dilution system and Real Controller Pro. The modular system approach allowed Real Tech to deliver a solution that provided the plant with the high quality continuous data they required while maintaining affordability.

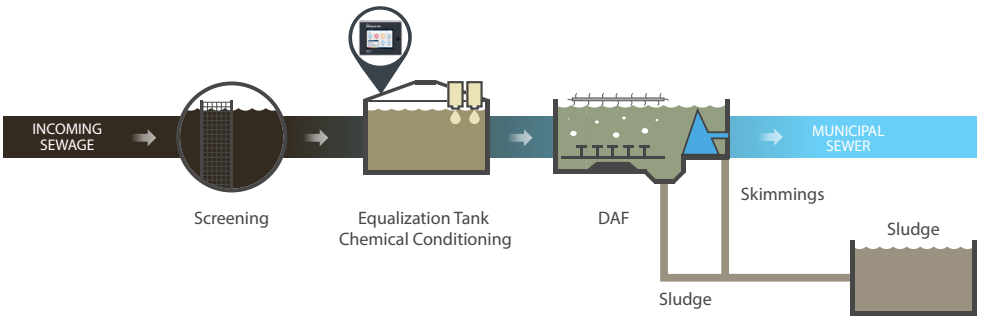

Fig. 1: A process diagram of the plant's wastewater treatment train showing where Real Tech's monitoring system is located.

As part of the work done, a custom COD calibration was developed specifically for the site as shown in Fig 2 that provided the plant with real-time actionable information on product loss.

By implementing real-time monitoring for product loss, the plant was able to see results in two key areas:

PROCESS OPTIMIZATION

Providing an almost immediate pay back and ROI, the real-time information captured by the monitoring system showed spikes were occurring at regular intervals each day. The plant operators quickly correlated these spikes to the upstream CIP process. These new insights exposed to the plant that a large volume of high solid, valuable product was washing to drain during each cleaning cycle. The plant acted and made changes to optimize their cleaning process and recapture more product in the rinse cycle (Fig 3).

PRODUCT LOSS MONITORING

In addition to optimizing the cleaning process to reduce loss, the plant also continues to monitor wastewater effluent for events or spills. Site specific thresholds have been established and real-time information is relayed from the Real Tech system to a graph on the operator's screen. This information allows staff to track and monitor effluent loading, alarming when problems arise, or upsets occur. Providing an early warning allows the operators to respond to events in a timely manner and reduce loss to drain.

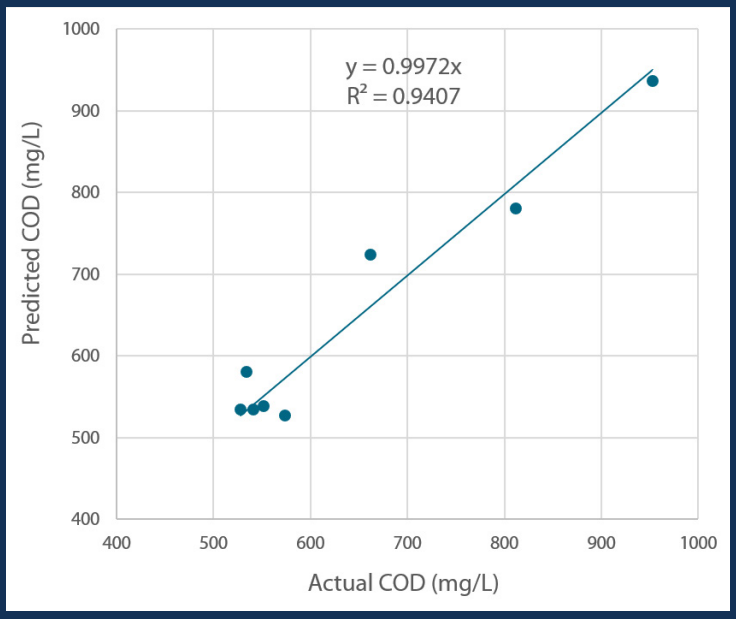

FIG. 2: A regression analysis showing the predicted COD results from the Real Tech system plotted against the laboratory COD results.

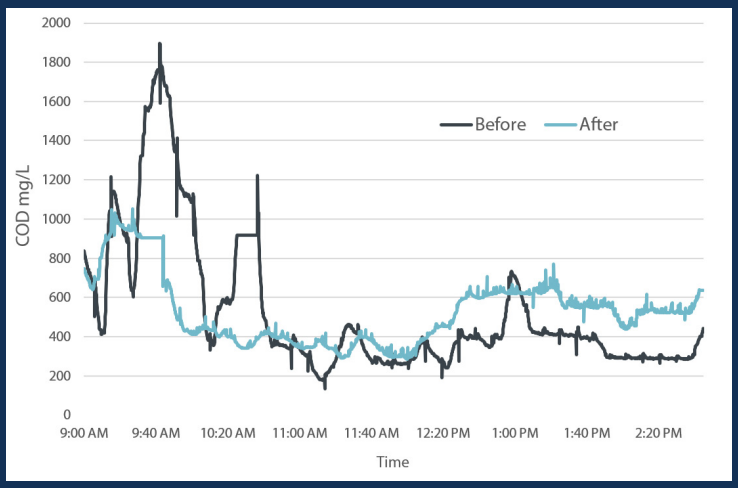

Fig. 3: Daily real-time data comparing COD before (black) and after (blue) cleaning cycle process improvements.

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