Case Study - PETERBOROUGH

Location: Peterborough, ON
Client: The City of Peterborough Wastewater Treatment Plant
Type of Plant: Municipal with Inflow and Infiltration and toxicity issues.
Size: 38 MLD (10 MGD)
Location of Sensors: Post-primary clarifier effluent and grit chamber capturing post-headworks influent + centrate
Problem Statement: Influent variability and high strength loads.
Outcome: Estimated yearly savings in the range of $100,000 to $160,000

Problem Statement and Facility Overview

SENTRY™ Client Peterborough WWTP has a wide variety of tricky influent to monitor. Septage receiving in addition to centrate return, large-scale industrial manufacturers, and strong seasonal populations trends (from a local university and cottage-goers) means the team has had to be on alert constantly.

After initial success with monitoring, the Peterbrough team is working with SENTRY™ to develop a comprehensive optimization strategy, using SENTRY™ sensors in conjunction with other technologies with a goal of becoming one of Ontario's leading facilities in efficient, high quality treatment.

Deployment Overview

The sensors monitoring the influent signal were able to quickly track the diurnal pattern for the facility, identifying off peak vs. on peak organic strength. This gave the operations team detailed insight into their loading dynamics, and helped identify optimal times to treat the centrate (during periods of low influent strength) with the goal of reducing strain on the aeration basins.

SENTRY™ identified an event caused by an industrial discharger, the operations team noticed that the clarifier had turned completely BLUE. While the initial reaction was to ramp up aeration, the SENTRY™ signal indicated that the blue colouring was not impacting their biological activity – meaning it was not accompanied by what they assumed was a huge load of BOD (Biochemical Oxygen Demand) or toxicity. They could confidently operate as normal and save on both electricity and chemical costs, as well as focus operational efforts on priorities instead of a prolonged campaign of sampling and treatment adjustments.

During another event, an unexpected dilution caused the septage receiving flushing system to become stuck on, the SENTRY™ sensor quickly caught the event on the dashboard and alerted the users of this change. The SENTRY™ sensor was also able to quantify the impact caused by spring snow melt and excess run-off diluting the organic content entering the facility.

Results and Value:

- Estimated yearly savings in the range of $100,000 to $160,000 are possible when the SENTRY™ data is used effectively to avoid upsets and fine tune operations based on changing influent conditions.
- The initial findings gave Peterborough the confidence in the SENTRY™ platform as one of the primary tools in overall system optimization.

Next Steps:

Peterborough and SENTRY™ will use the sensor data to evaluate DO efficiency and the potential for optimization. This insight will support the operations team with a more holistic view of the facility.

"I know the plant is protected because SENTRY™ sensors have shown a clear picture of what is coming into our plant and helped us avoid costs and worry with certain conditions that don't affect treatment"

Daryl Stevenson -
Water and Wastewater Operations Manager