



Frankfort - Case Study

Problem Statement

The wastewater treatment facility of Frankfort, KY serves a population of 30,000, and their catchment includes 2 upstream distilleries and 14 industrial clients – notably one distillery less than 1km (.6 miles) from the facility. The plant operates grit removal, an activated sludge oxidation ditch, a sludge thickener and two-stage aerobic sludge holding with a belt press. The plant has a capacity of 9.9 MGD (37 ML) from two collections streams – municipal and industrial. In December 2020, after several “plant kills” (treatment biomass die-off) related to distillery discharges, the operations team installed a SENTRY™ system to monitor the influent for problematic loading.

SENTRY™ Value Proposition

- Low maintenance, real-time monitoring of Biomass Health at the influent channel helps the plant avoid kill off events as operators can divert high strength influent to a large EQ tank, and meter it back in during periods of more stable influent.
- The operations team can use targeted manual sampling to capture data during upset conditions.
- The operations team can use the data to identify loading trends and patterns, allowing them to prepare and act early on reoccurring events.
- The operations team can find tune their process decisions during upset events to identify what works to maintain a stable effluent quality despite changing influent conditions.

Initial Findings and Deployment Evolution

Insights from the SENTRY™ data included the profile of ‘high organic loading’ and toxicity from the distillery discharges, as well as the extent of the impact from rain dilution events. A recurring weekly upset event flagged by the SENTRY™ team was identified as an unintentional overlap of the EQ tank cleaning schedule with leachate delivery at the receiving station – a combination which sent a highly concentrated load and cleaning agents into the biological treatment process at the same time.

The sensors continue to be a monitoring tool at the facility, and a second system has been installed into the two influent stream splitter boxes for an earlier point of detection and action. Based on their experience, the Frankfort team has provided feedback on the sensor design for easier installation and maintenance.



Next steps

The facility is using the two layers of SENTRY™ defense to protect and optimize its treatment process during highly variable influent fluctuations and toxic events. The Frankfort team is exploring the addition of a third SENTRY™ system further into the process to contribute to a feed-forward aeration control process.

Results and Value to Frankfort

- Estimated yearly savings in the range of \$80,000 to \$120,000
- Better management of oxidation ditch loading (5-10%)
- Potential for further improvements in treatment through feed-forward aeration control

Proposed Testimonial

"I've walked into our plant and to find our oxidation ditch turned grey, and by then it's too late. I know I'm better protected because SENTRY gives me the early warning I need to take action."

Carl Groce, Plant Superintendent, Frankfort, KY



Distillery discharge events



Learn more at:

sentrywatertech.com