



## Case Study - Wessex Water

**Location:** Chilton Trinity, UK

**Client:** Wessex Water

**Type of Plant:** Municipal wastewater with conventional Activated Sludge (ASP) and Biologically Activated Flooded Filter (BAFF)

**Location of Sensors:** Splitter box upstream of the BAFF unit and the outlet of the BAFF

**Outcome:** It is estimated that Wessex can save annually on average 75,000 GBP (95,000 USD) by directing normal flows to the ASP and only using the BAFF for high strength organics. Other Wessex sites are being introduced to the technology to support their treatment goals.



The Chilton Trinity site of Wessex Water takes in municipal waste along with trade waste from a large fruit juice manufacturer. It also suffers from I&I issues when there is heavy rain. To prevent issues from the industrial discharger, Wessex built a BAFF system and directed 55% of the flow to it. BAFF systems are very effective with a tradeoff of high energy consumption.

### Why SENTRY™ ?

SENTRY™ Sensors were chosen because other types of sensors struggle to pick up the short chain carbons. To compound that, the use of a UV Vis sensor has to be post BAFF so the leading edge of any organic overload is missed. Initially, the question was can SENTRY™ Sensors perform comparably to other real time monitoring tools in both function and reliability.



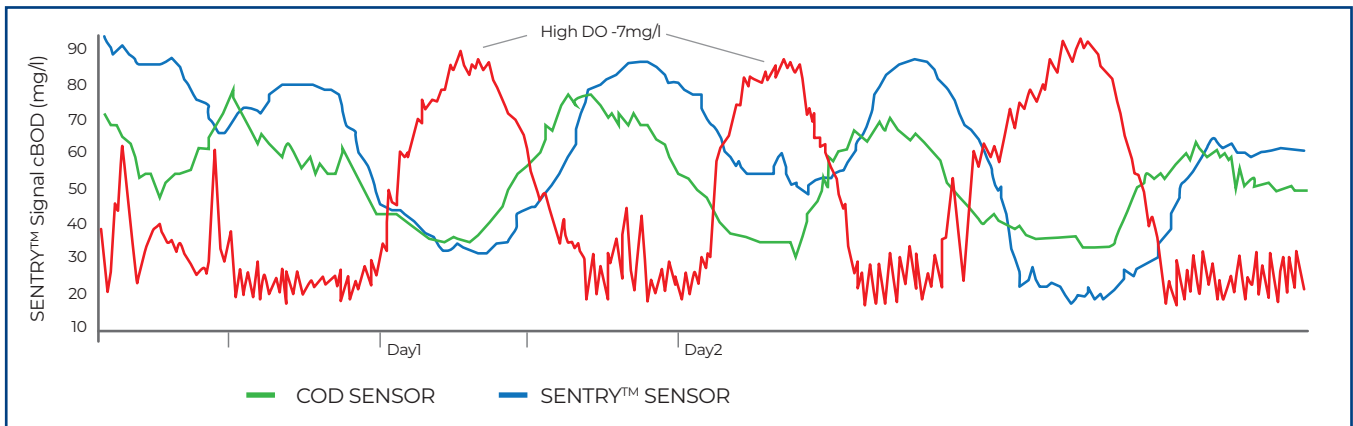


Figure 1. Daily change in organic loading to the facility resulted in clear daily response in SENTRY™ Signal readings that were inversely correlated to dissolved oxygen concentrations. Low SenS periods (high DO) were selected as key periods for process optimization.

### Initial Findings and Deployment:

SENTRY™ Sensors were able to identify 21 imbalance events in the initial 3 months, 4 of which were industrial discharges and 15 were caused by I&I. The system picked up the organic loads earlier than other real-time monitoring tools in the plant. It required minimal maintenance with no cleaning, calibration, or consumables.

### Results and Value:

Based on energy costs and loading it is estimated that by using SENTRY™ Sensors as part of the decision making process can lead to savings annually on average of 75,000 GBP (95,000 USD). SENTRY™ clearly identified events that caused the plant issues before hitting the treatment works, so the team can make informed decisions. SENTRY™ Sensors proved to be reliable and correlate to other real-time monitoring tools with a fraction of the maintenance.

### Next Steps:

The Wessex Water team is working with their SENTRY™ customer support to identify opportunities to use the feed-forward SenS™ data to automate and optimize processes at this facility, and others across the Wessex Water network.

