



Now part of Decision Blue® by  **Usalco**

Real-Time Wastewater Quality Monitoring



"I've walked into our plant 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 act."



Carl Groce, Plant Superintendent, Frankfort, KY

"I need an early warning on problem wastewater entering my facility"

* Improve water quality

"I need a simple, low maintenance signal that alerts operators and allows us to protect the treatment process."

* Reduce costs

"If SENTRY can save us costs and reduce our GHG emissions, then we would be very interested in them taking this forward."

* Reduce GHG emissions



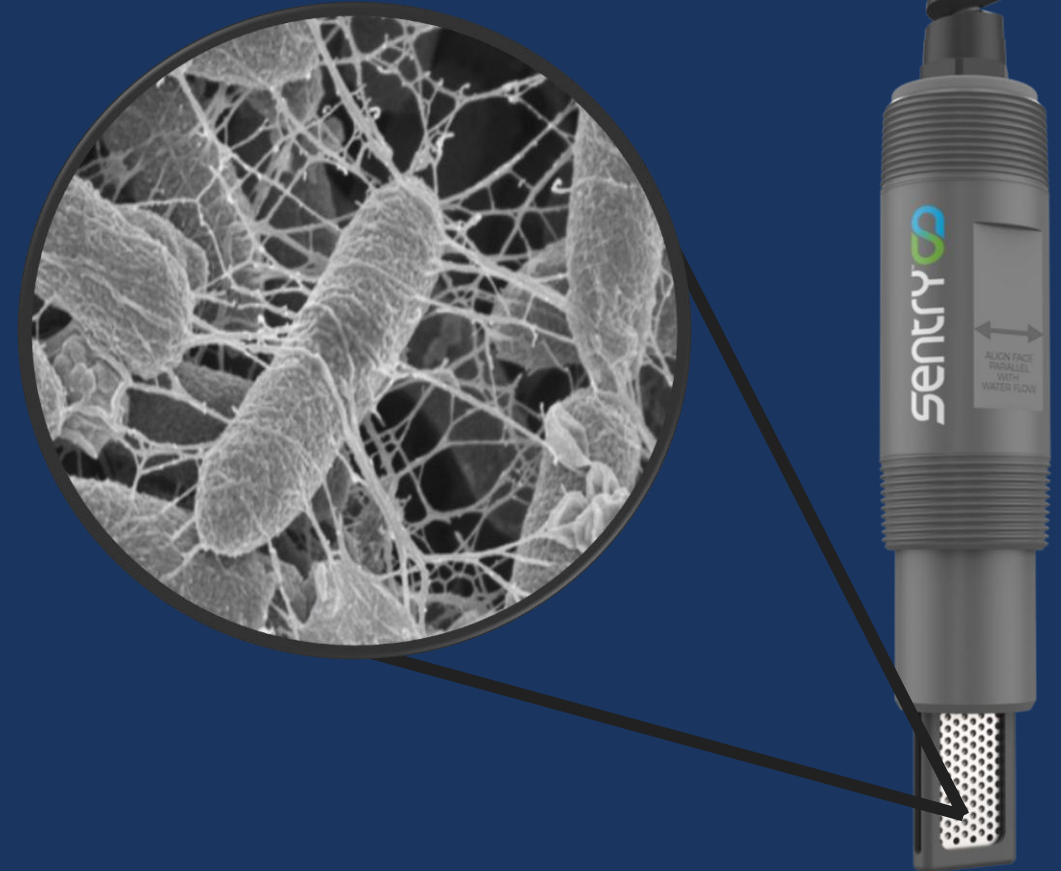
Using SENTRY, the reduced energy costs can save Carl -

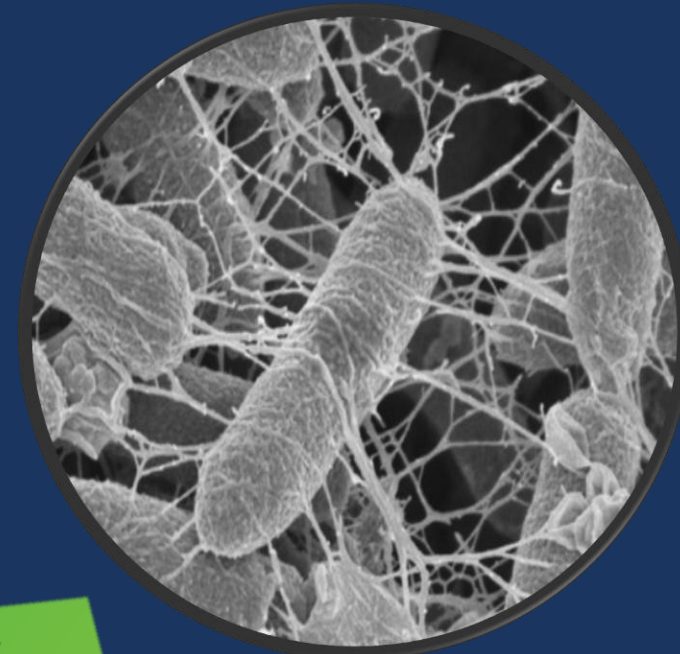
USD \$121,486 – \$80,991

How does it work?

Unlike traditional monitoring equipment, the SENTRY™ sensor does not use light or membranes to provide data but instead relies on the metabolism of microbes present in the system.

**No need for replacement parts,
routine calibrations or unreliable data!**

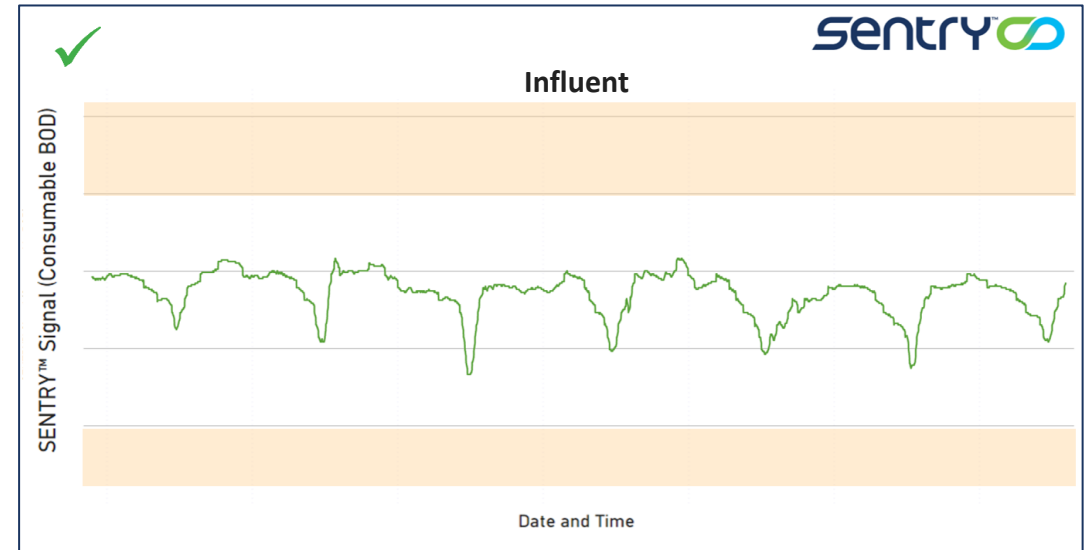






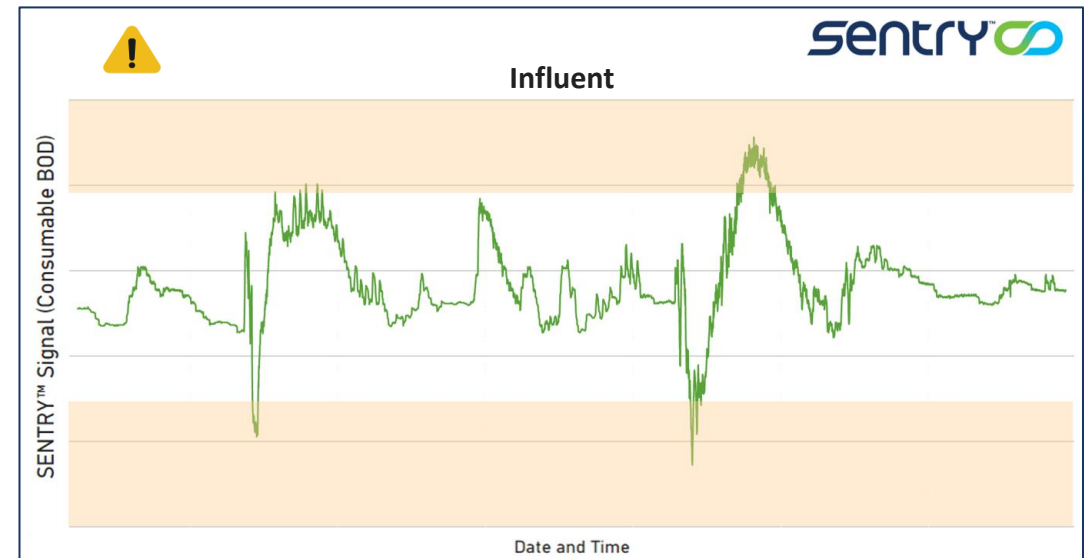
Predictable Outcomes

Diurnal pattern as represented by SENTRY shows a weeks worth of stable organic loading indicative of healthy and manageable wastewater quality.



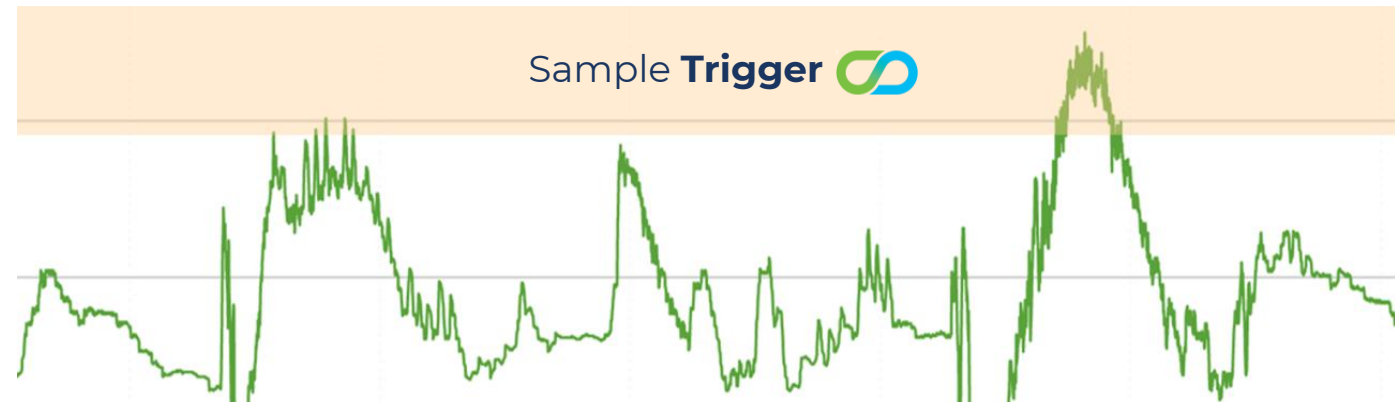
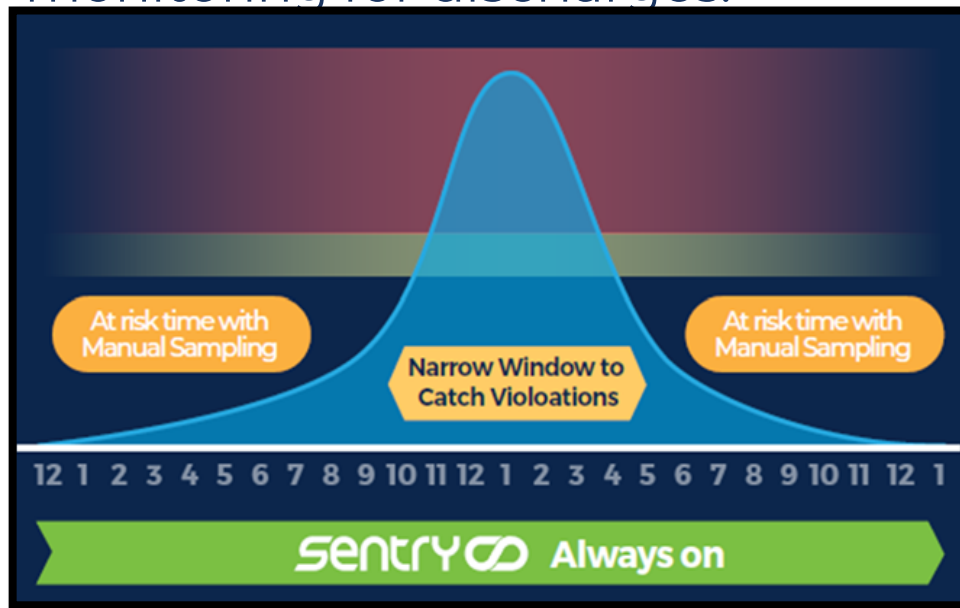
Wastewater Imbalance

When variability inevitably disturbs the diurnal pattern, the sensors respond in real time capturing events that often result in significant treatment instability and potential compliance issues

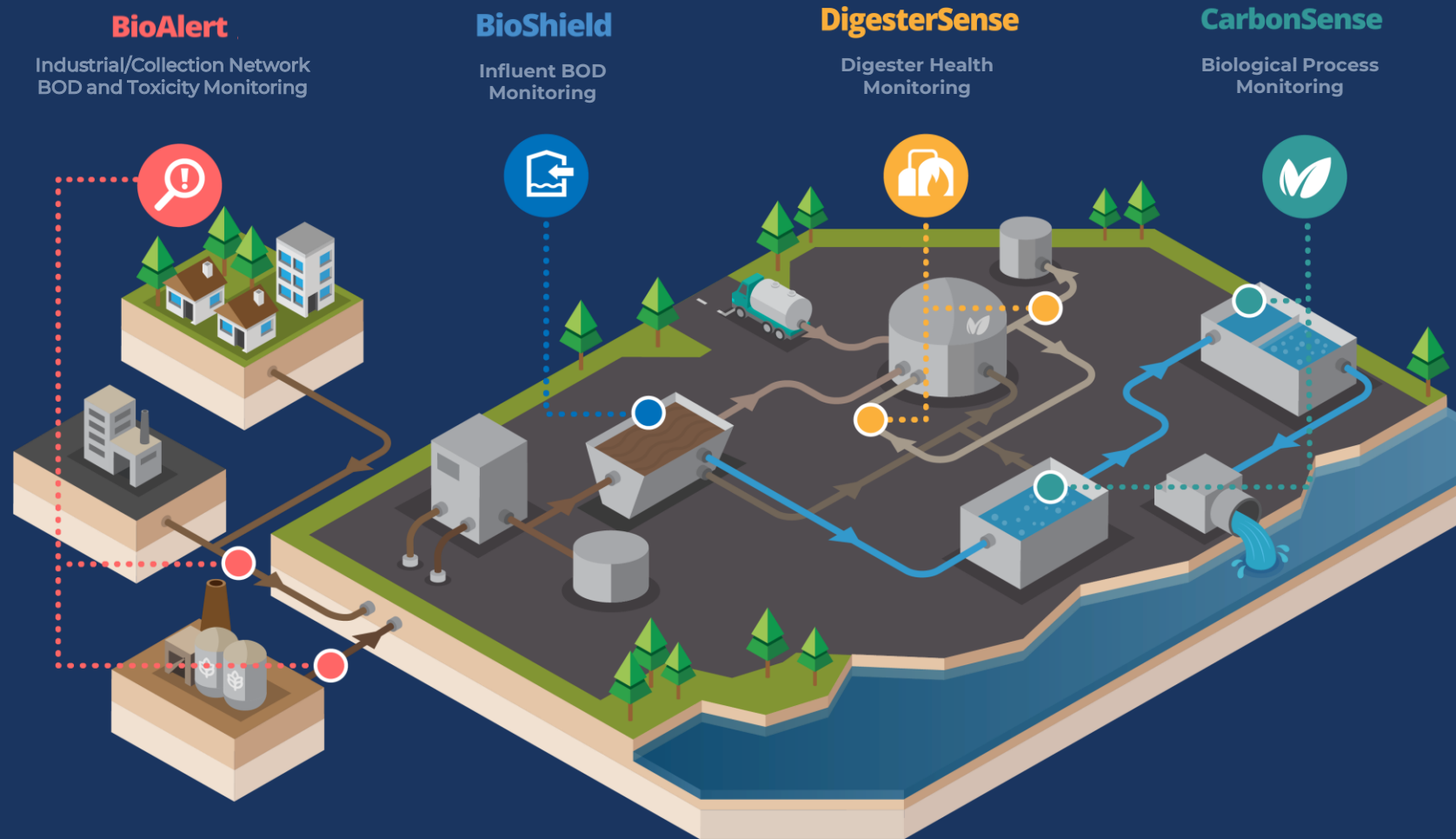


When paired to an auto-sampler – **event-based notifications** are used to trigger **representative grab samples**, eliminating the guess work of manual grabs or dilution of composites when monitoring for discharges.

Representative Grab Samples
Sample only When it Counts



Common Installation locations in WWTP



Case Studies





Pre-Treatment Support

Understanding the **sources** responsible for contributing to wastewater variability at the treatment plant allows for additional SENTRY Systems to be deployed in **key locations** throughout the collection network

 **Comprehensive** Wastewater Surveillance

 **Real-time** Wastewater Quality Network

 Industrial Park

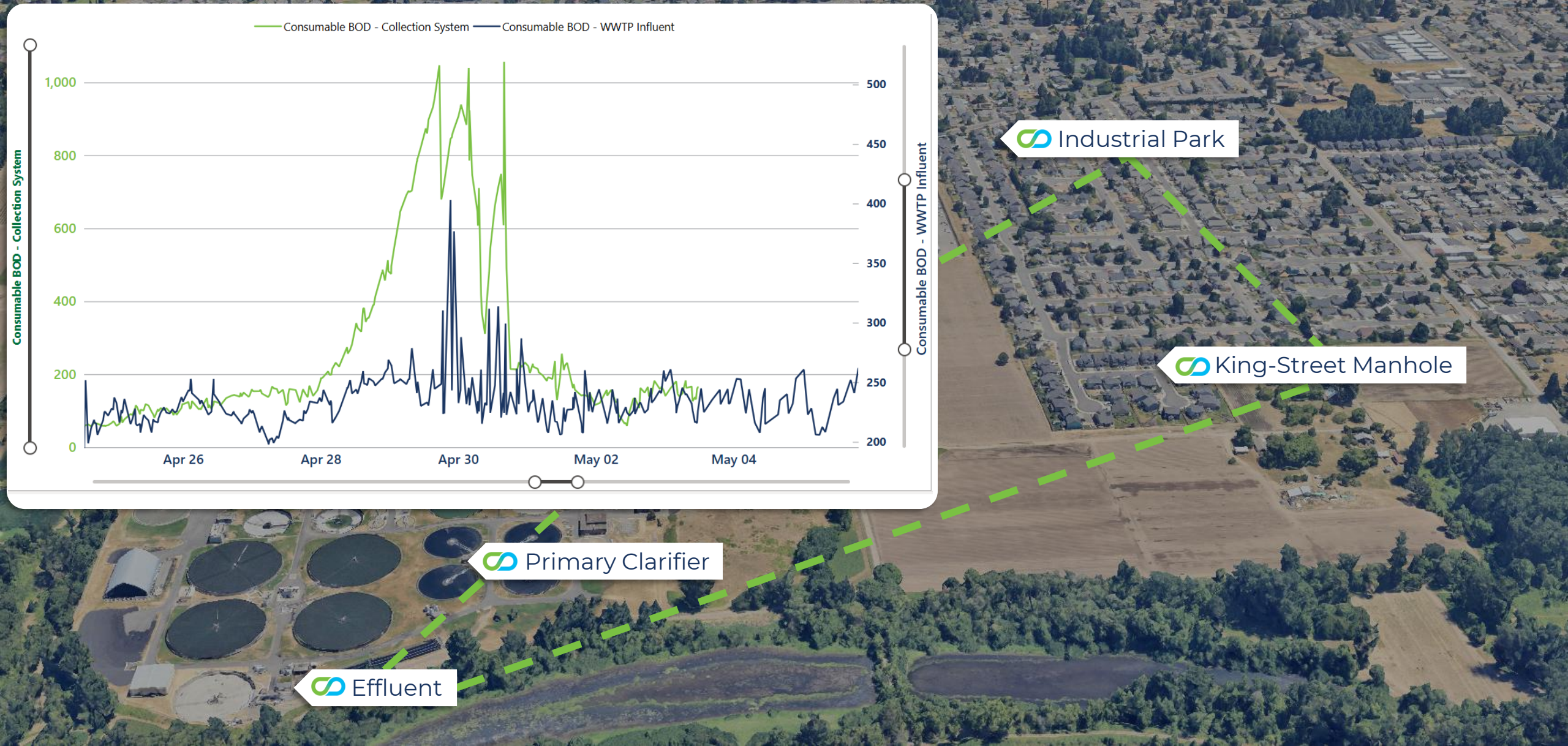
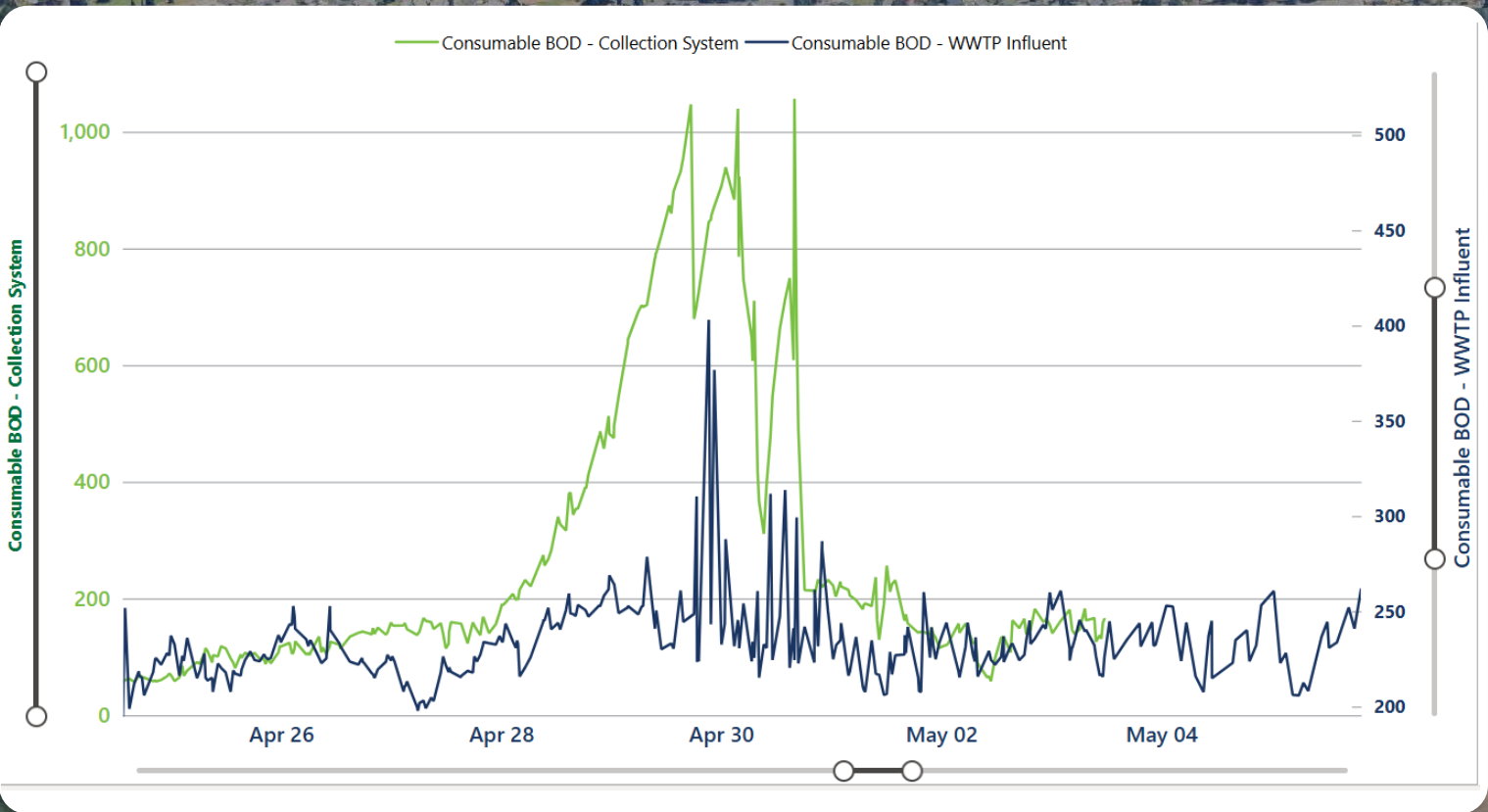
 King-Street Manhole

 Influent

 Primary Clarifier

 Effluent

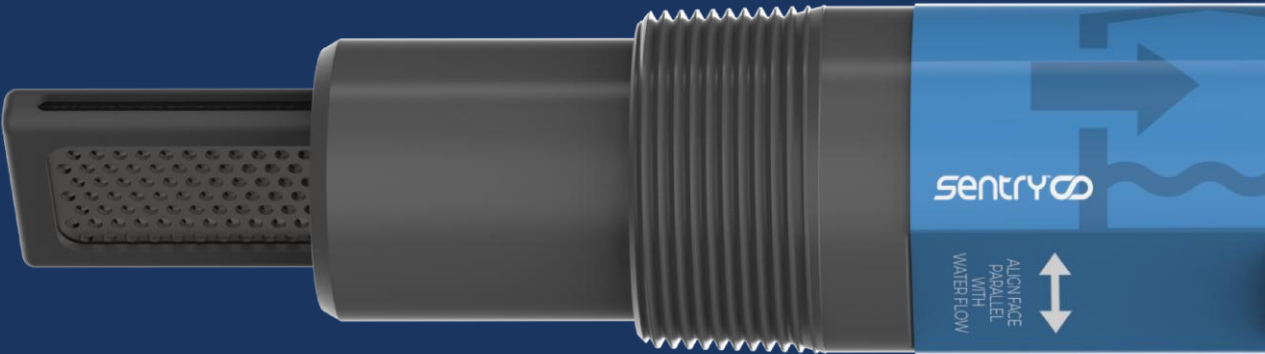




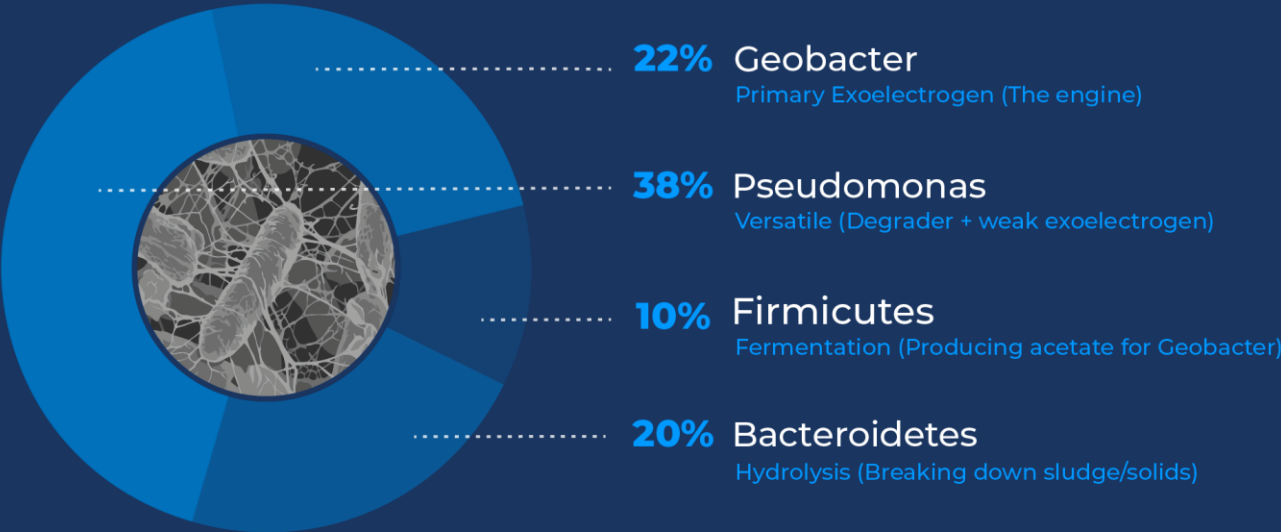
BioShield

Influent BOD Monitoring

Protect your entire biological treatment process from organic overloading or wastewater toxicity events.



Bacterial Diversity



Influent Monitoring - Frankfort, Kentucky

Installation



- ✓ Installed Sep 2020 across multiple processes
- ✓ SCADA integration for plant automation and control
- ✓ Prevention/elimination of frequent plant upsets

"I've walked into our plant 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 Sewer District*



Influent Monitoring - Frankfort, Kentucky

Data

-  Weekly organic overloading events detected
-  Events linked to distillery discharges
-  Events resulted in major impacts to secondary treatment performance



Cobourg, Ontario

Installed July 2022 directly in the **influent channel** of a municipal WWTP

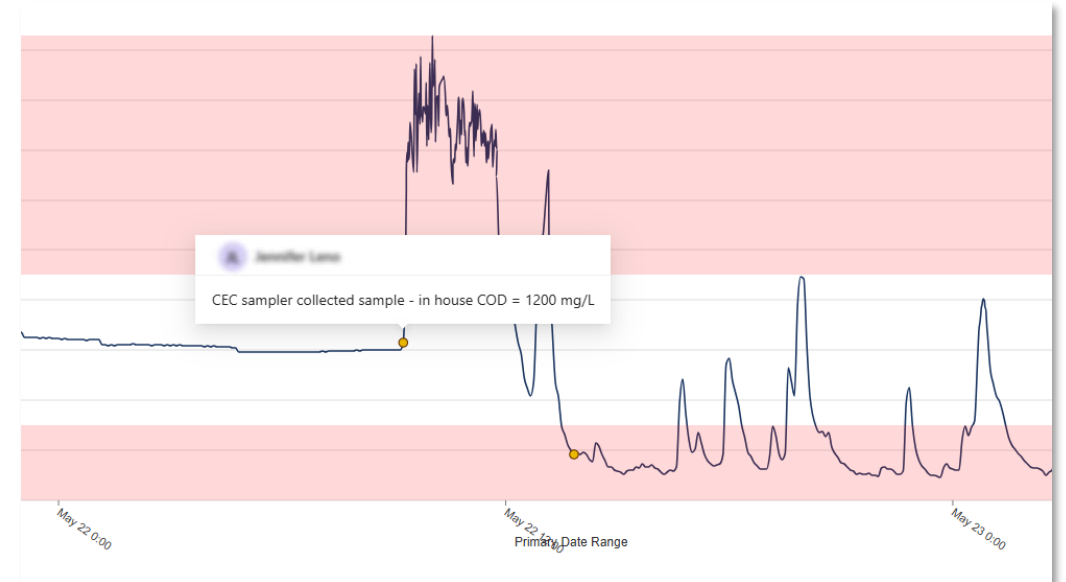
Integrated to auto-sampler *with* event-based sampling **analysis**





Cobourg, Ontario

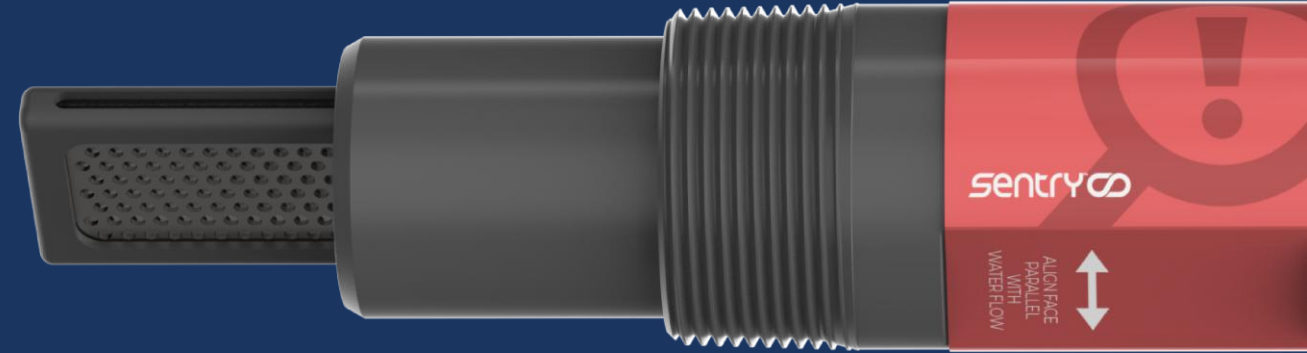
- Multiple instances of **high organic loading**
- Auto-sampler** event-based sampling trigger collected several event-based samples
- Samples we're sent away for **analysis**, to determine industrial source



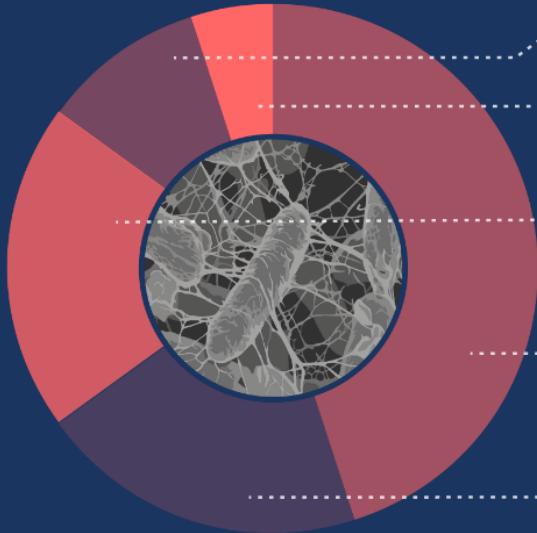
BioAlert

Industrial/Collection Network BOD and Toxicity Monitoring

Identify the source of your wastewater variability. Monitor industrial users at effluent and in the wastewater collection network that are negatively impacting downstream treatment.



Bacterial Diversity



10% Geobacter

The Sensitive Engine: Often struggles here. Abundance is lower because high ammonia levels (from protein breakdown) can be toxic to them.

5% Thauera

Tough Survivors: Often found in industrial waste; they handle toxic aromatics and high nitrogen loads well.

20% Bacteroidetes

Protein Specialists: They specifically target the high nitrogen/protein content, releasing amino acids and ammonia.

45% Firmicutes

The Butchers: Primary hydrolyzers. They secrete heavy enzymes (lipases/proteases) to liquefy fats and proteins.

20% Proteobacteria

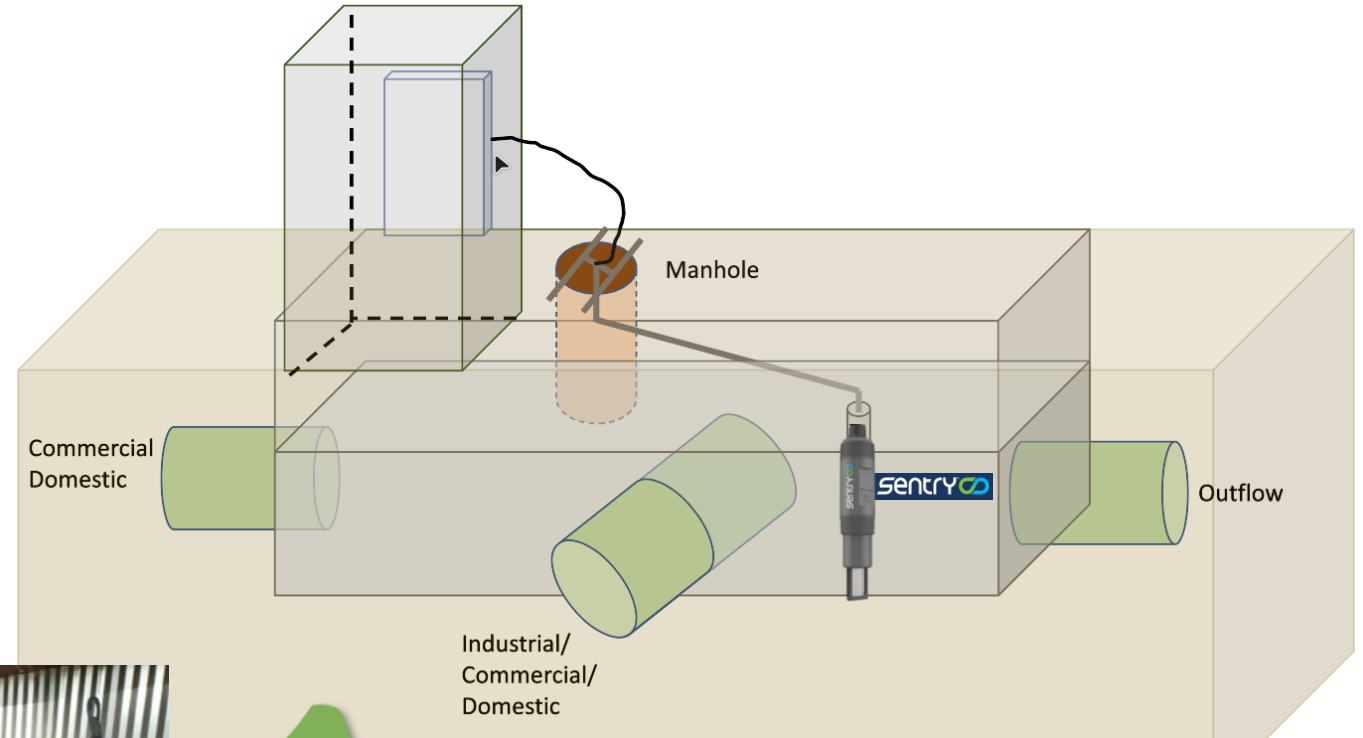
Scavengers: Acinetobacter thrives here due to its ability to degrade fats (lipids).



Collection – Boise, Idaho

Installation

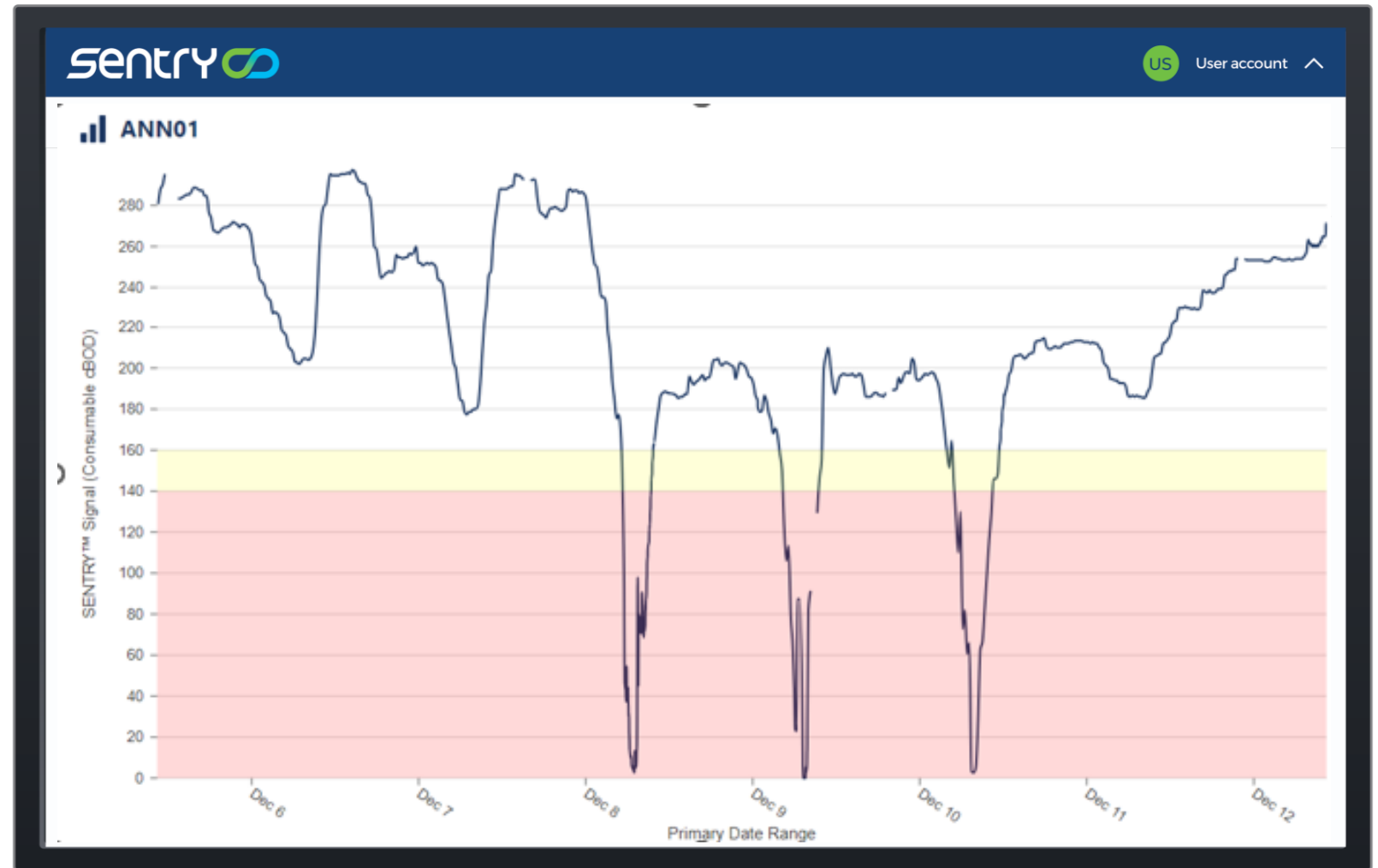
- ✓ Installed Oct 2023 at a key junction in the collection system
- ✓ Only **2** inspection/maintenance activities required to date.
- ✓ Cloud based dashboard allows for remote access to wastewater quality data / real-time alert notifications



Collection System – Boise, Idaho

Data

- ! Three instances of significant biological inhibition detected overnight from Dec 8th – Dec 10
- ! Inhibition events linked to process instability down stream.
- ! Linked to industrial cleaning procedures.





Wright City, Missouri

- Installed November of 2024 at the **Primary Clarifier** of the WWTP and the effluent of a nearby **industrial user** that feeds directly to the plant
- No** routine maintenance activities to date, data feeds directly to SCADA / accessible via the cloud



Jun 8, 2026 11:16 PM to Jun 29, 2026 11:16 PM



Show data from last:

1 hour

3 hours

6 hours

1 day

3 days

1 week

WRC01

Consumable BOD (mg/L)



Event Logs

Site Time

+ Log an event

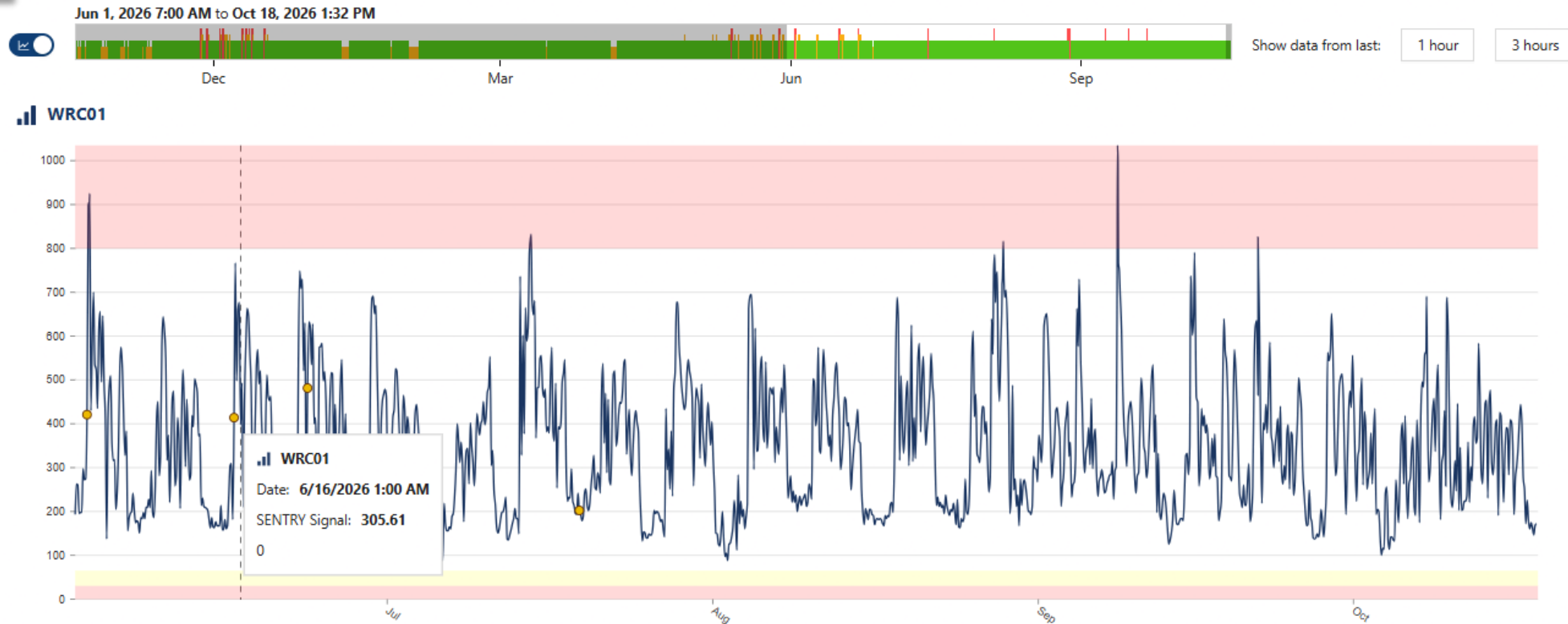
Timestamp	Notes	User	
7/19/2026, 11:00:57 AM	Weekend drops	AG Aishwarya Gurung	Edit
6/23/2026, 11:10:35 AM	The industrial contribution continues to be high (Flagged by Aishwarya on 5/19/2026). While the cause is under investigation, I am deactivating Amber high (600) alarms to prevent alarm fatigue.	LV Luan Vieira Adames	Edit

Simple alerting to elevated BOD

Operator note-taking based on alarms

Patterns emerging in data

Industrial



Reliable effluent BOD and toxicity monitoring from industrial effluent

Diurnal patterns

4-day work-week

Simple alerts for elevated BOD (high)

Simple alerts for toxicity (low)

Long term trend visualization

Primary Clarifier

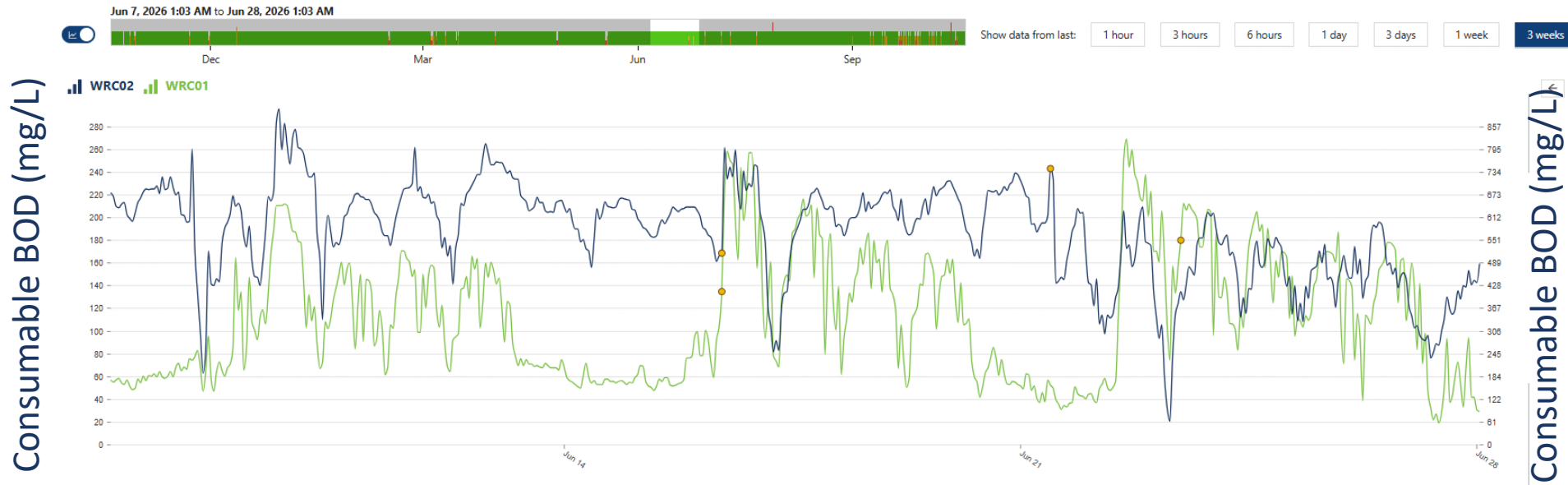


Impact of industrial line can be monitored

High BOD loading can be monitored

Other environmental factors (rain infiltration, winter temp.) can be flagged

Primary Clarifier

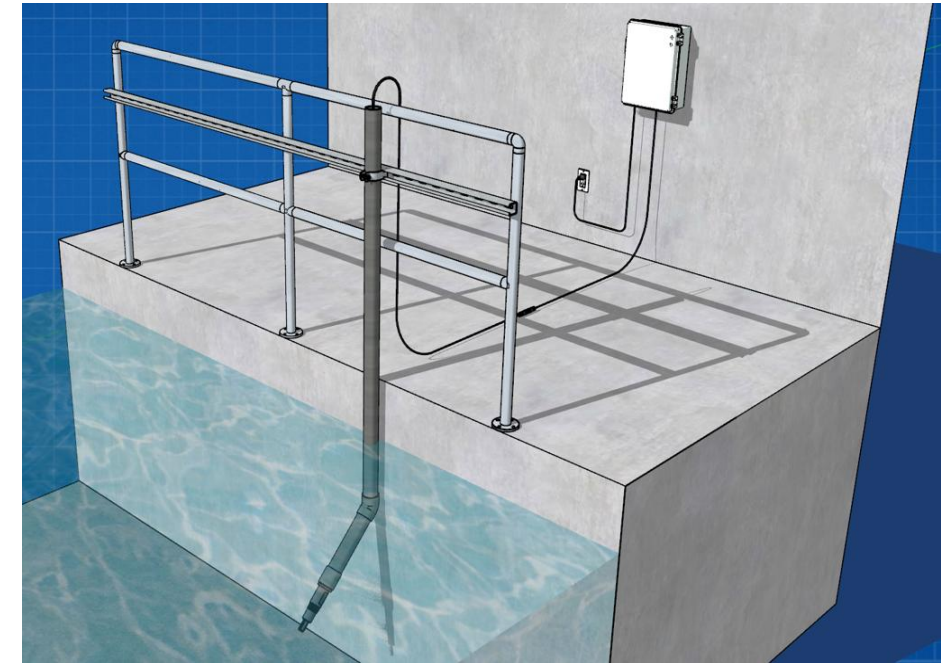
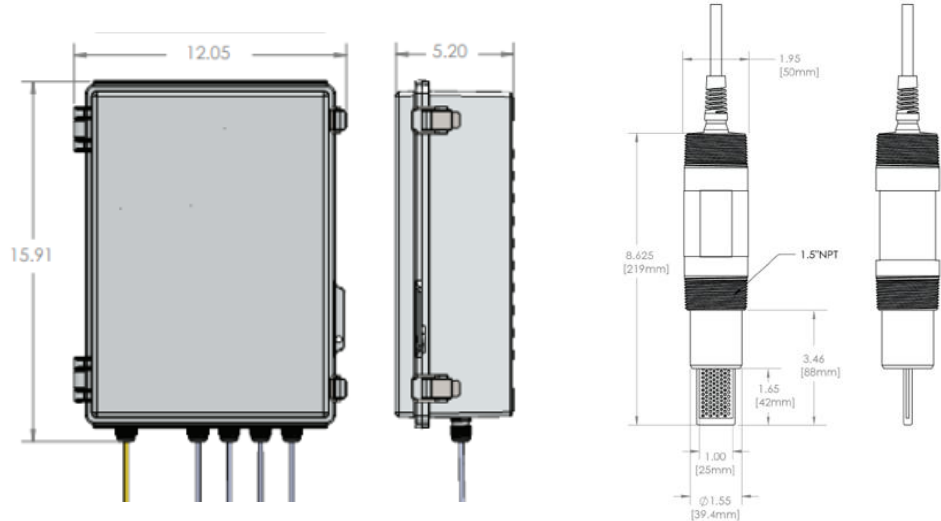
**Comparison/overlay of signals**

High BOD loading can be monitored

Other environmental factors (rain infiltration, winter temp.) can be flagged

Installation and set-up

- Cellular, WiFi, Ethernet, API, and 4-20 Analog connectivity options
- 1-1/2" NPT front and back-end threading for in-pipe, or channel mounting
- NEMA 4x / IP67 Rated Panel
- Up to **4 Sensors** per panel



Report Summary

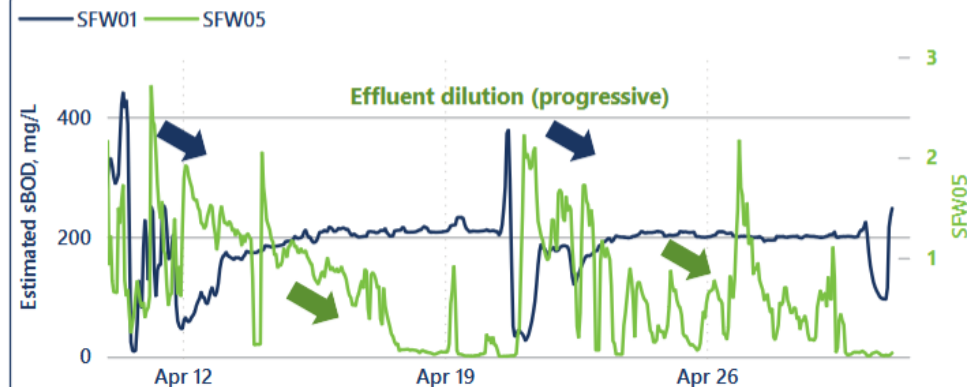
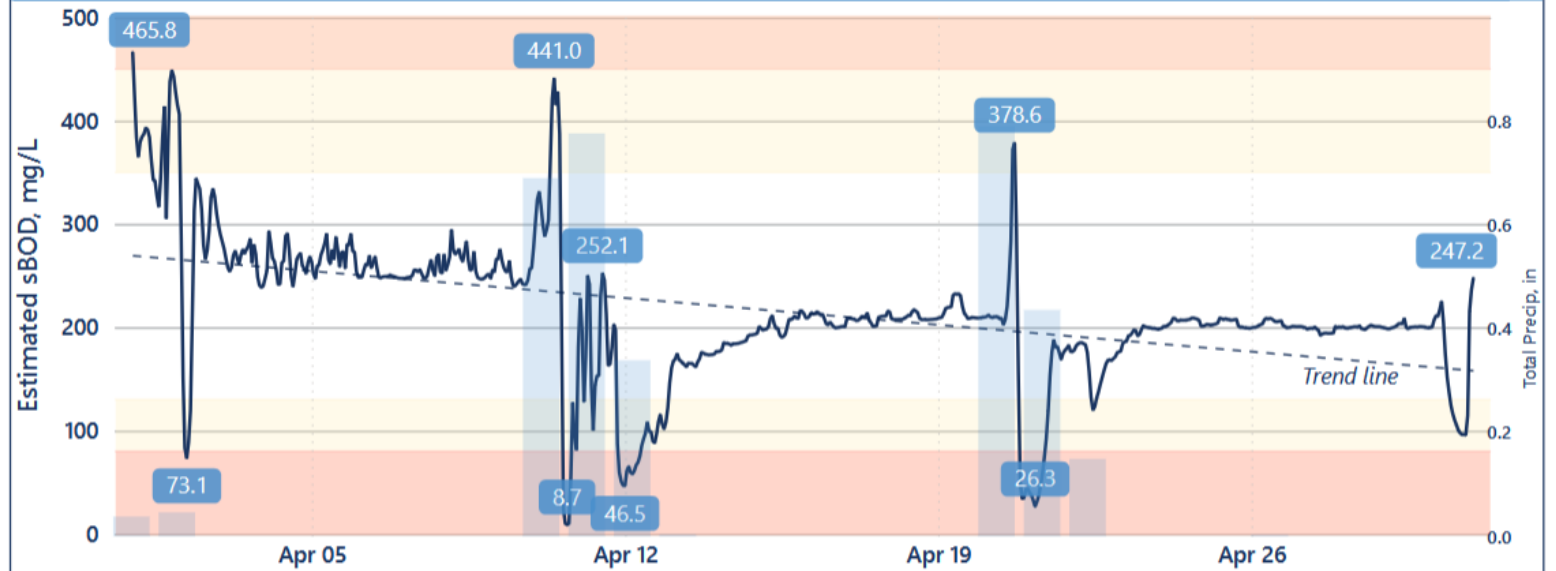
- Influent sBOD remained generally stable, with clear dilution during rain events.
- The mid-month storm (April 10-12) introduced the highest variability and resulted in a step-down in the sBOD baseline afterward.
- The effluent (SFW05) sBOD showed delayed decreases following rain events, consistent with normal process lag and dispersion effects.
- No sustained effluent impact observed, confirming stable and resilient treatment performance.
- Overall, rainfall drove short-term variability, with the plant maintaining effective operation throughout.

Key Event Focus

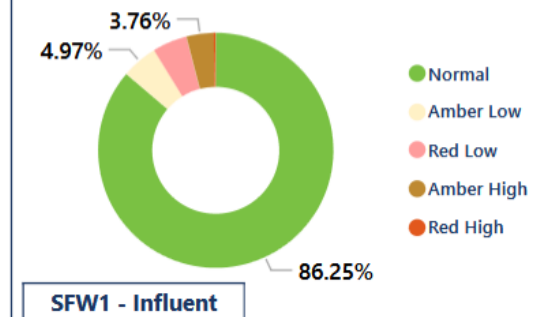
-Apr 10-12: Major storm caused influent dilution and high sBOD variability, followed by a lower sBOD baseline. Effluent decreased a few days later, consistent with a propagation lag linked to the plant's hydraulic retention time.

-Apr 20-21: Similar rain-driven dilution, with a delayed decrease in effluent sBOD observed a few days after the event.

SFW01 - Influent, San Francisco Southeast WWTP



Percent Time in Each "State"



Report Summary

-The highest risk of effluent violations was identified on **May 11 with spikes on 7:36 and 10:04 AM**. Similarly other higher risk was also noted on **May 25-26 and 29**.

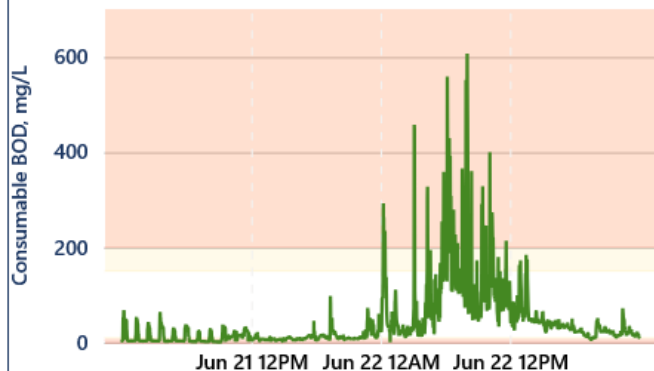
-Multiple short high cBOD (consumable BOD) spikes were identified during the following timestamps as well:

- May 15 , 10:44AM with 5T processes as the cause
- May 16, 12:06 AM
- May 18, 6:15 AM with 8T start and 16T start

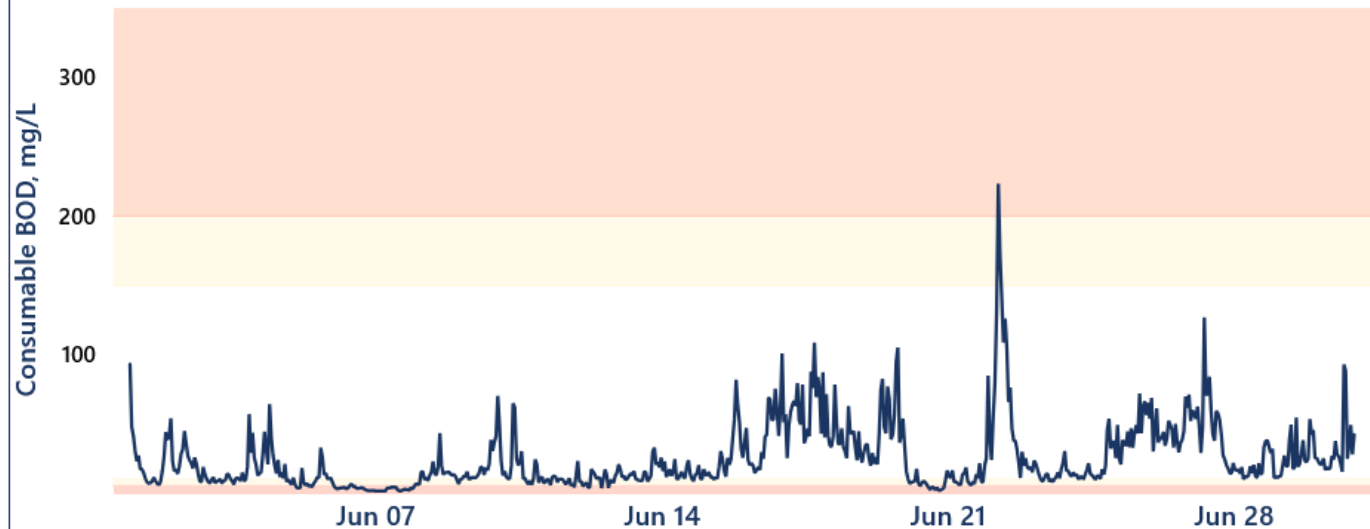
Key Event Focus May 25-26

- A sustained increase in cBOD was noticed on May 25 morning, which spiked into the caution zone at **11:28 PM**. This was followed by six hours of a high cBOD period until **May 26, 5:44 AM**, before dropping to normal levels.

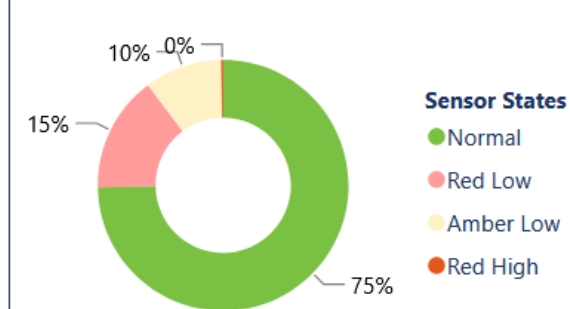
Key Focus on June 22 effluent violation risk



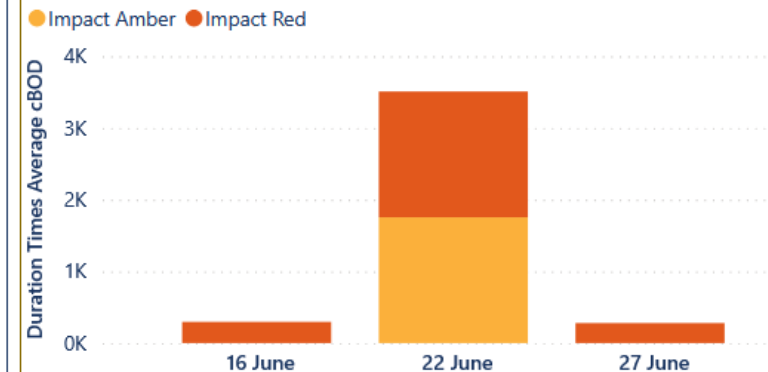
Effluent Sampling Manhole



Percent in Each "State"



Effluent Impact (Duration X Avg. cBOD)



Pricing

Lease

Starting at **\$16,000**

Per Year

- ✓ Online Dashboard Access
- ✓ Real-time Alert Notifications
- ✓ Dedicated Account Manager
- ✓ Monthly and Annual Reports
- ✓ 1 Control Panel, Up to 4 Sensors
- + Optional Add-Ons

Standard 12-month service terms apply.

Purchase

Starting at **\$28,500**

One Time Payment

- ✓ Dedicated Account Manager (up to 12 months)
 - ✓ Online Dashboard Access (Year one)
 - ✓ Real-time Alert Notifications (Year one)
 - ✓ 1 Control Panel, Up to 4 Sensors
 - ✓ 12 Month Full Warranty
 - + Optional Add-Ons
- Service term starts 10 days after receiving equipment.

Q & A



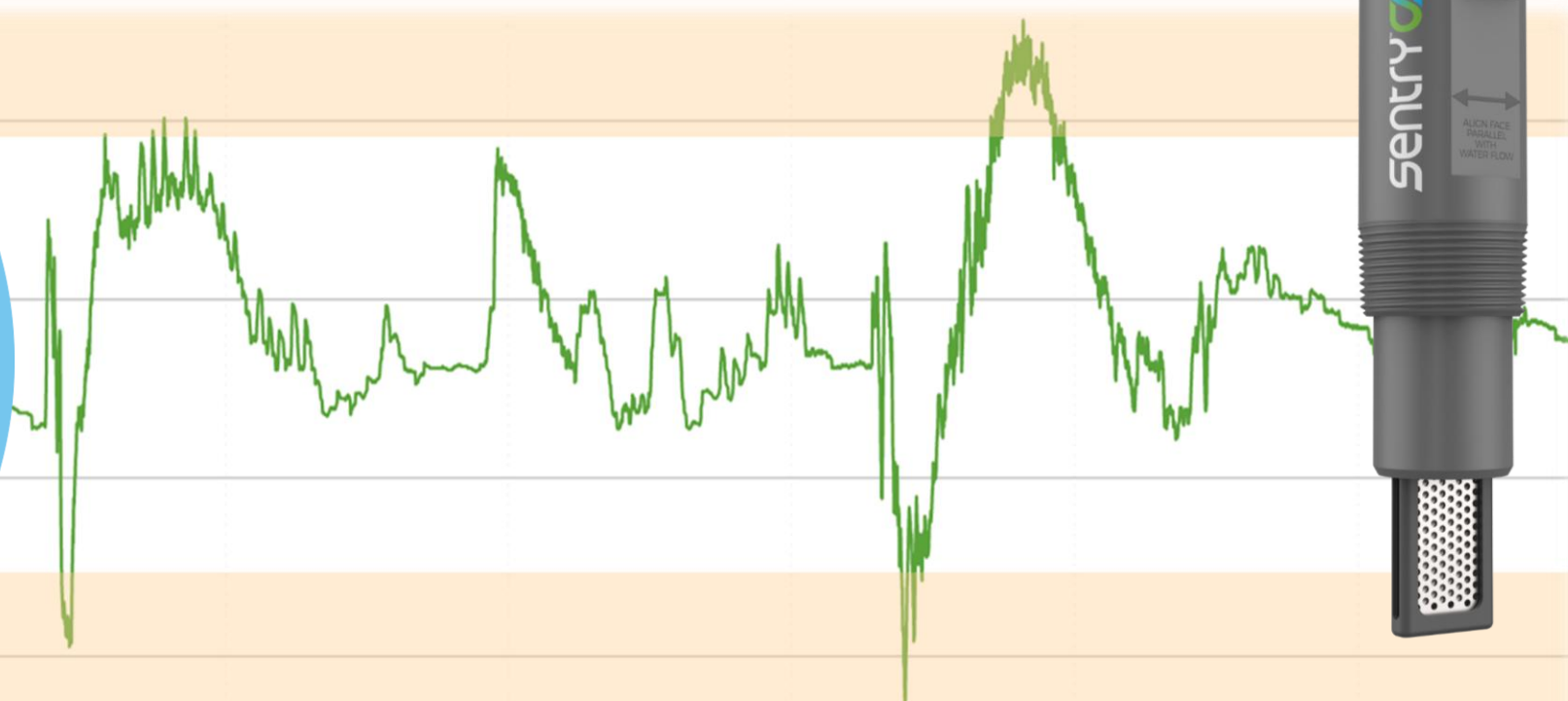
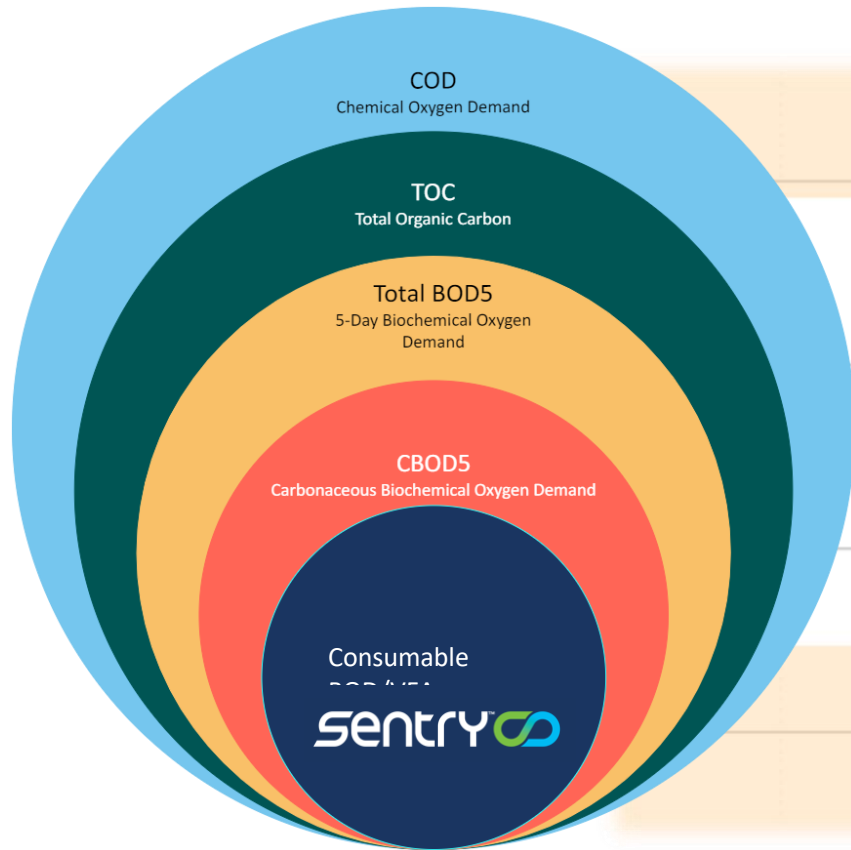
Monitor more effectively,
Know early so you can act!



The Solution



What Does it Measure?



Our products.



BioShield

Influent BOD
Monitoring



BioAlert

Industrial/Collection
Network BOD and
Toxicity Monitoring



DigesterSense

Digester Health
Monitoring



CarbonSense

Biological Process
Monitoring