



Always on,
Quality monitoring!



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**Fluctuating influent
wastewater**



Biological changes



Costs up to \$200,000



Limited tools available



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90+ Global installations:





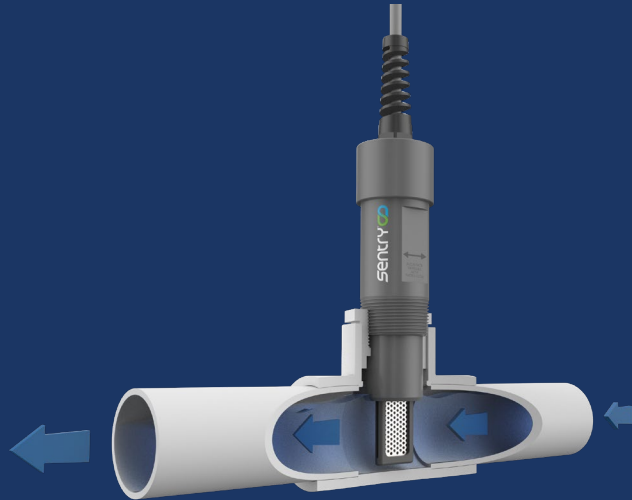
Biological Imbalance

Unknown loads coming into the facility at unpredictable times

- Constant over-aeration and sampling (\$\$)
- Risk of major effluent quality issues leading to fines, or other regulatory burdens (IPP, building moratoriums, etc.)
- Current sampling/sensors may miss events as they arrive, or only catch them after they are in the treatment process



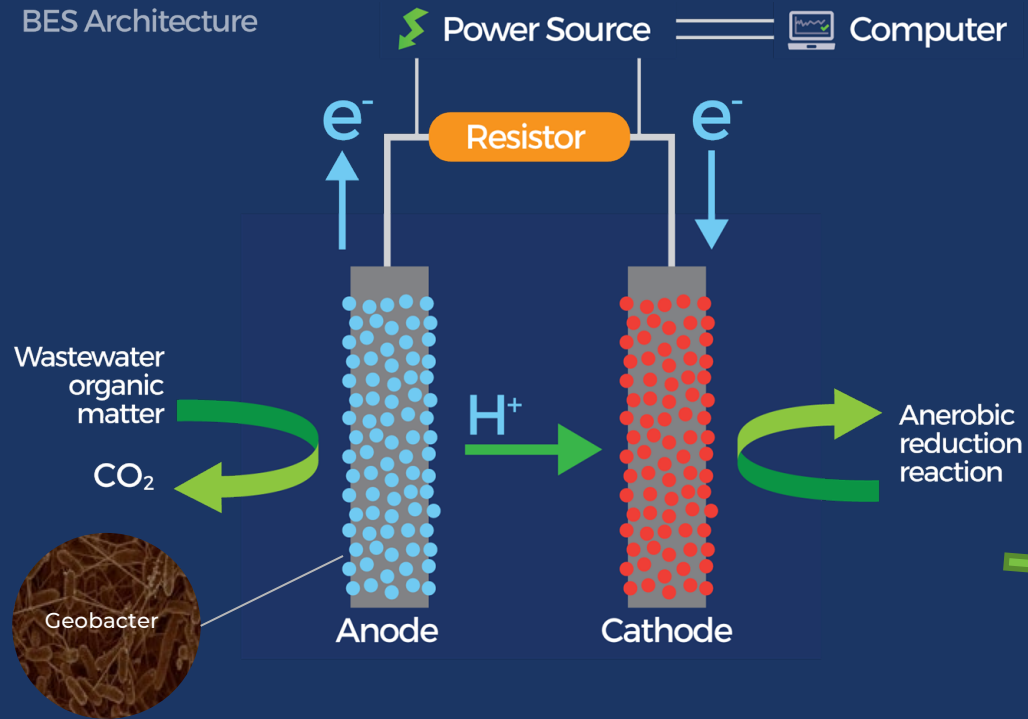
What is the Sentry platform?





A low maintenance biofilm sensor platform

BES Architecture





Installation:

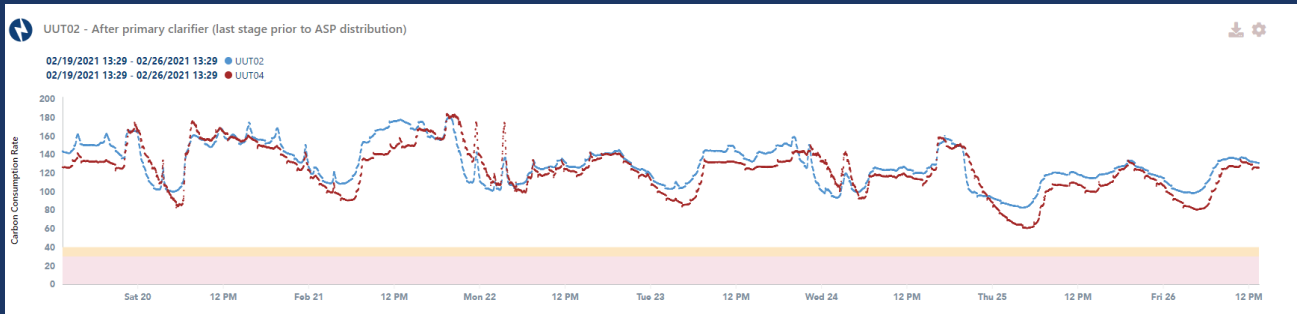
- Plug and play (2-3 hours installation) with installed SIM
- Alternative standard: wifi, ethernet, 4-20 mA
- With conversion: profibus & modbus available
- Download *.csv anytime
- 24 W power draw
- Typically 1-2 panels with 2-4 probes each



Standard NEMA 4x Panel



Low/no maintenance

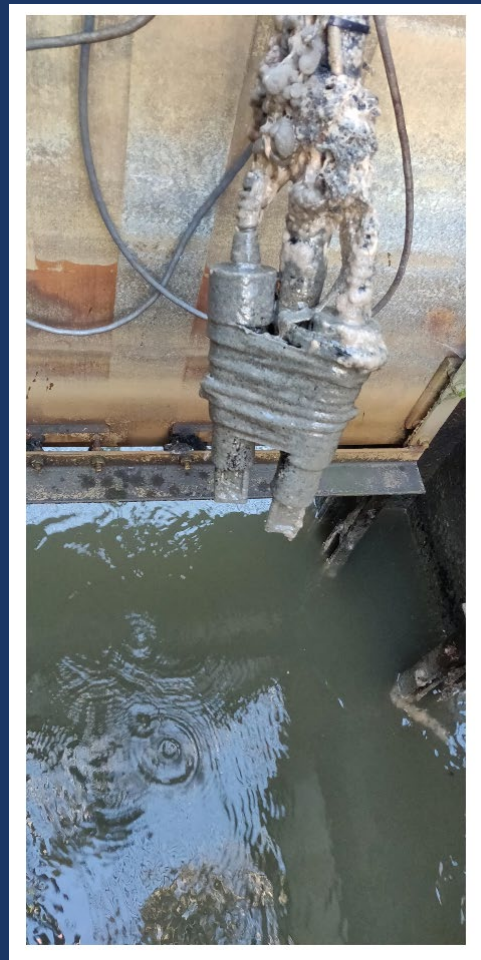


Blue installed in May 2019

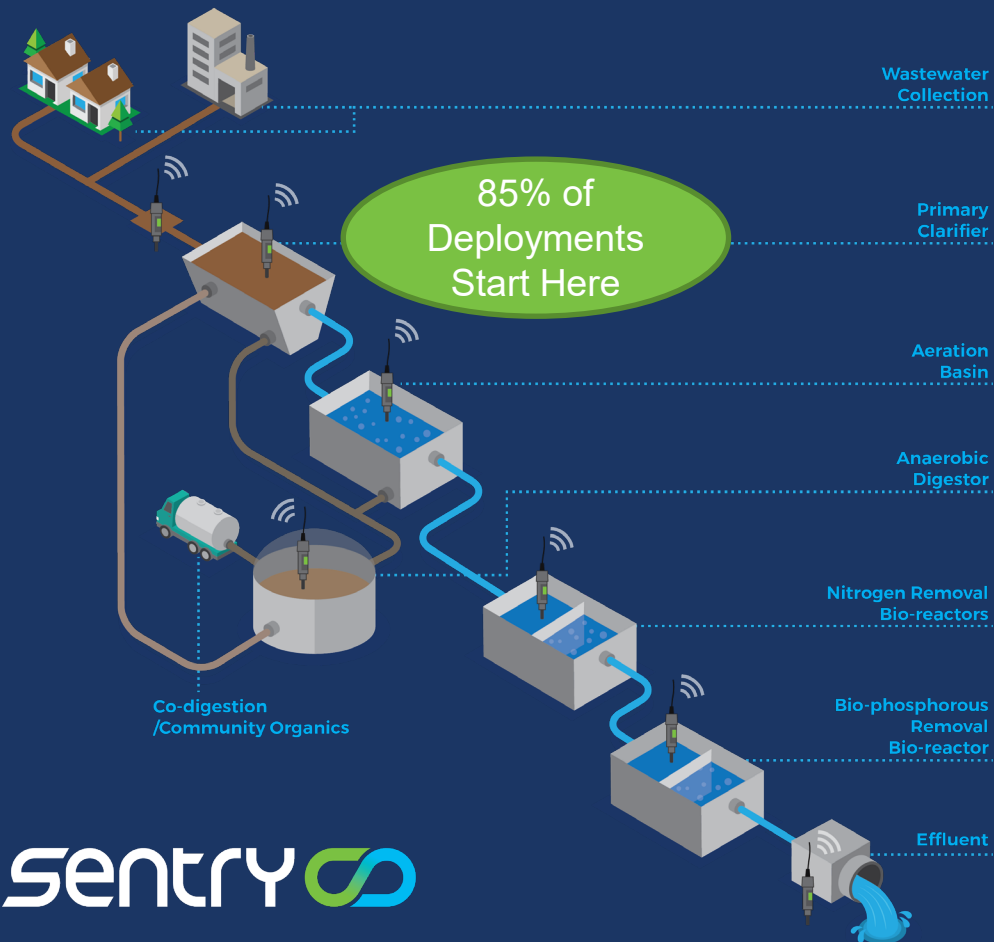
Red installed in October 2020

No maintenance to date. Planned a maintenance regime but COVID limited access to site

Picture from December 2020



Wastewater treatment plant monitoring & optimization



1 Wastewater Collection System Monitoring & Industrial Discharge Detection

- Identify industrial discharge / toxicity
- Understand organic loading
- Influent monitoring

2 Influent Organic Load Monitoring And I&I Impact Quantification

- Understand impact of I&I (rain events)
- Identify toxic / imbalance events
- Determine seasonal impact on plant performance

3 Aeration Optimization

- Optimize aeration efficiency
- Save costs on reduced aeration

4 Anaerobic Digestion Optimization / Co-digestion Loading

- Monitor bio-reactor stability
- Optimize co-digestion
- Maximize biogas production

5 Carbon Dosing Optimization For Denitrification

- Optimize carbon dosing to denitrification
- Save costs on reduced carbon dosing

6 Bio-P Process Monitoring

- Monitor VFA generation
- Identify carbon requirements

7 Effluent Wastewater Quality Monitoring

- Monitor effluent wastewater quality

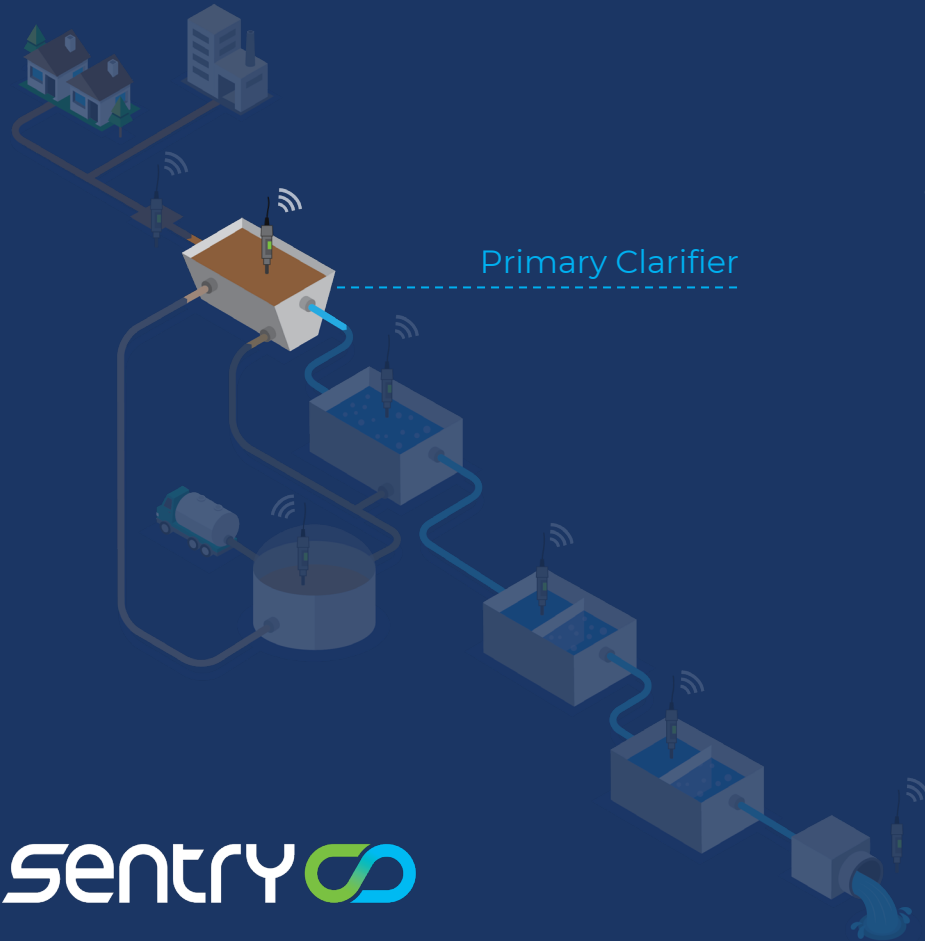
A low maintenance biofilm sensor platform



Living **biological sensor** which reacts to changes in environmental conditions in **real-time**



Influent Organic Load Monitoring Impact & Quantification



\$25,000/year

Savings



Wastewater Collection System Monitoring & Industrial Discharge Detection

\$15,000/year

Savings



- Detecting both organic loading AND toxic shocks
- Feed forward AND real-time
- Allows for operational actions to mitigate incoming load impacts
- Patterning and statistical analysis
- Can help identify when this is happening to predict future events



Thank you

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