

ROAD TO NET ZERO - MINIMIZING N2O EMISSIONS



WATER TECHNOLOGIES



Wastewater treatment operations are increasingly confronted with external factors such as **Climate Change, the UN goals, local and regional regulations**, etc.

These factors are highlighting the importance of **mitigating laughing gas (N2O) emissions** through **measuring, understanding and controlling strategies**.

Hubgrade Wastewater Plant Performance optimizes your plant by aggregating **real-time data**, applying **analytics, algorithms, and AI** developed with Veolia's worldwide **expertise**.

Your plant's performance is then continuously optimized: **ensuring compliance while taking care of N2O emissions and sustainability**.

RESULTS OF Hubgrade by VEOLIA

WASTEWATER PLANT PERFORMANCE *



REDUCTION OF
N2O EMISSIONS



REDUCTION OF
TOTAL NITROGEN
CONCENTRATION
IN EFFLUENT

Ensuring overall
effluent quality
standards

Minimizing
operating
expenses in the
same time

OTHER BENEFITS OF REAL-TIME OPTIMIZATION

COST OPTIMIZATION

By improving the **overall N2O emissions** of the plant, HWP will reduce in the same time: **electricity costs, chemical usage, effluent fines and taxes** while increasing the plant's **hydraulic & biological capacity, biogas production, phosphorus recover**, With the effluent quality as the first objective, it leads to both **CAPEX and OPEX savings**.

COMPLIANCE

By having a **full understanding of the biological processes** occurring in the treatment plant and by leveraging the power of **data**, HWP can improve the **biomass performance** and adapt it in real-time to the actual load. This thereby enhances the capacity of the treatment plant. With increasing loads and/or stricter effluent permits, HWP will **aid the operator to be compliant**.

PEACE OF MIND

By **continuously monitoring** various parameters, **analyzing** data trends and leveraging AI, HWP can **alert** operators to potential challenges, **before they would be detected** by traditional technologies. It will help the operators to **be in control** of what is happening in their plant. The **more proactive** the solution is, the **less pressure** the operators will have.

*formerly named: Hubgrade Performance Plant

VEOLIA 4-STEPS N2O MITIGATION JOURNEY: THE MUSE

- 1 MEASURE**
Developing a comprehensive framework for assessing and measuring N2O emissions, including reporting techniques and indicators
- 2 UNDERSTAND**
Exploring the biological pathways and sources of the WWTP N2O emissions
- 3 STRATEGIZE**
Investigating and implementing actionable solutions for WWTP to reduce these emissions, moving from reflection to action
- 4 EMPOWER**
Providing operators with strategies to achieve equilibrium in a variable and complex working environment

THEY TRUST Hubgrade
by **VEOLIA**

WASTEWATER PLANT PERFORMANCE

Bjergmarken WWTP, Denmark

125,000 PE - Minimize the greenhouse gas emissions, focusing on N2O



78%

- Reducing the N2O emissions by 78%
- Divided the emission factor of the plant by more than 3 in 1 year (from 3.7% to 1% N2O-N/TN inlet)

Næstved WWTP, Denmark

100,000 PE - Reducing their N2O emissions in biology



90%

- Reduced the N2O emissions in biology from 70% to up to 90%
- Overall WWTP estimated N2O emission reduction: 56%

International N2O projects

20 utilities worldwide : Measuring, Understanding & Strategizing their N2O emissions. Projects combining online sensors and DNA



20+
WWTP

- Supervising pioneering initiative on N2O mitigation
- More than 5 years of R&D projects with utilities, universities etc.
- Many advanced N2O mitigation strategies based on aeration, DNA etc.

Veolia Water Technologies

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