



Process Emissions Webinar Series

Webinar 1: Fundamentals of Wastewater Process Greenhouse Gas Emissions

July 18, 2024

Speakers: John Willis (Brown and Caldwell) and Amanda Lake (Jacobs), moderated by David Ponder (U.S. Water Alliance) and Harry Zhang (The Water Research Foundation).

Key takeaways:

- With new insights and knowledge, the global community working in this area is discovering that **greenhouse gas (GHG) emissions from water resource recovery facilities (WRRFs) are comparable to those from global shipping and aviation industries**. By daylighting the emissions from WRRFs, the problem becomes visible, creating additional opportunities for collaboration and funding support.
- Various GHG protocols exist to provide consistency in approaches and calculations, but they are all dependent on the Intergovernmental Panel on Climate Change's (IPCC) protocol, which is based on a global scale. This presents a problem for accurate measurement of GHG emissions unless site-specific measurements are taken to **improve the accuracy and completeness of the data** collected.
- To properly mitigate GHG emissions, **it is important to measure GHG emissions from WRRFs accurately and frequently** using operational activities while identifying all the sources of GHGs within the facilities.
- **Nitrous oxide and methane emissions are becoming more dominant** in GHG Scopes 1, 2 and 3 emissions as we switch to renewable energy.
- It has been found in some European facilities that nitrous oxide emissions have been **underestimated by 50 to 400%**, which has made it difficult to estimate GHG emissions without accurate measurement.
- Apart from season and space, **other factors such as operational conditions, process type, equipment selection and maintenance** have been found to influence nitrous oxide and methane emissions.

Crucially, the panel discussion highlighted that progress in mitigating GHG emissions from WRRFs is fastest with regulation and **collaboration**.

This series was organized by the U.S. Water Alliance and Canadian Water Network, hosted by The Water Research Foundation, and presented in collaboration with the Danish Water Technology Alliance, Water Environment Federation and International Water Association.

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