

DRINKING WATER INITIATIVE OF THE YEAR

WINNER: TYPHON TREATMENT SYSTEMS AND UNITED UTILITIES PROJECT: THE WORLD'S FIRST MUNICIPAL UV LED DISINFECTION SYSTEM INSTALLATION

UV disinfection has been a mainstay in water treatment plants for more than 20 years. It is used to protect potable water from dangerous microorganisms such as cryptosporidium.

In recent years, UV LED technology has developed to a point where it can start to replace mercury lamps for water treatment applications. However, a big technical challenge for the industry has been how to apply them to a 24/7, high flow-rate application, as would be required for a municipal water treatment plant. In 2014, Typhon Treatment Systems was founded to develop such a system. A development process which culminated in the world's first third party validation of a UV LED system in 2018.

United Utilities has been a key partner in the Typhon story since engagement with the United Utilities Innovation Lab in 2015 – a process which has included extensive field trials to prove system performance, a 10-year innovation framework and the world's first municipal UV LED disinfection system installed for United Utilities at Cumwhinton in Cumbria.

Cumwhinton has six first stage rapid gravity filters (RGFs), and the UV LED units are being installed on the individual outlets of the RGFs, treating up to 28MLD.

The programme of work was awarded to MMB, one of United Utilities construction delivery partners. The MMB team has worked closely with Typhon to develop the detailed design and carry out the on-site installation works. It has taken a real team effort to deliver the first commercial UV LED systems ensuring compliance with United Utilities' technical standards but also having the flexibility to adapt to take advantage of the unique features of the new technology.

This project was due to be completed in early 2020 but the impact of the Covid-19 pandemic means that the current programme aims for completion of the project by early 2021.

Even today, UV LED is in its early stages of development and, through the Innovation Lab process, United Utilities has supported Typhon's development and gained insight and confidence in the technology progression while Typhon has gained valuable knowledge and buy in from across the United Utilities organisation.

The Typhon system supports water companies in meeting many of OFWAT's innovation challenges including: supporting the industry's drive towards Net Zero Emissions with significant whole life costs reductions in power consumption and consumables; protecting public health and the environment by eliminating the need for mercury in water treatment; and delivering long-term operational resilience with a system which will, as it progresses through its operational life, increase in asset capacity and decrease in operating costs.

Shortlist:

- Coffey Construction – Lough Talt, Co. Sligo, Water Treatment Plant Upgrade
- Irish Water – Drought Response 2020: Low cost resilient solutions delivered in short time frame to secure water supply
- Southern Water – Site Operating Manuals
- VEGA Controls – Unique Borehole Level Measuring System with Bluetooth Communication and Full WRAS Certification

THE JUDGES SAID...

“The innovative adoption of UV treatment in drinking water disinfection using LEDs secures public health, but also provides a means to significantly reduce energy consumption and increase operational life whilst conversely minimising some risks of traditional systems.”