



IDEXX Tecta: Less downtime and better compliance with automated onsite biosolids testing



Cog Moors is a Wastewater Treatment Works (WwTW) owned by Dŵr Cymru Welsh Water, a UK not-for-profit water utility company serving 200,000 customers across South Wales. It is an innovative Advanced Anaerobic Digestion (AAD) facility that employs a thermal hydrolysis process. The AAD process produces biosolids that are used as fertilizer and are distributed to local farmers for land application. With its commitment to the circular economy and willingness to embrace innovation, Welsh Water is setting new benchmarks for what local water utilities can accomplish.

One recent innovation that Welsh Water has embraced is IDEXX Tecta™, a microbiological testing system that measures the effectiveness of the sludge treatment process, helping the team ensure compliance with biosolids regulations. The IDEXX Tecta system has quickly become a key technology used by the Cog Moors operational team, allowing them to operate efficiently and avoid costly downtime.

The Challenge: Costly downtime and reactive testing

The primary objectives for any water utility are maintaining regulatory compliance and protecting public health. For the Cog Moors site this means ensuring that its biosolids quality meets their regulatory compliance requirements. Cog Moors conducts thorough testing to ensure their biosolids end product (fertilizer) complies with the Biosolids Assurance Scheme (BAS) requirement: that they contain less than 1,000 CFU of *E. coli* per gram of dry material. Every 3 months, Welsh Water's biosolids samples are sent to an external, accredited laboratory for compliance testing.

Cog Moors has several policies and procedures in place to ensure that no non-compliant biosolids are distributed for land application. If compliance testing finds *E. coli* levels in excess of 1,000 CFU per gram, Cog Moors must contend with serious consequences. The site goes into quarantine to ensure compliance, and Cog Moors starts immediate, costly, remedial reactive testing.

The sheer volumes of sludge from daily wastewater inflow mean that Cog Moors operates under stringent production processes with minimal room for any unplanned downtime.

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Dr. Des Devlin, Cog Moors Wastewater Sludge Scientist

Cog Moors treats up to 55 tons of dry solids a day, which in sludge terms is approximately 220 wet tons a day. Any reductions or stops to sludge processing can result in thousands of pounds of unnecessary expenditure. Dr. Des Devlin, Cog Moors Wastewater Sludge Scientist, estimates that the cost of lost production can be up to £10,000 a week per non-compliance event. This is in addition to the cost of remedial testing which can total £20,000, plus the logistical costs of diverting the sludge to another AAD facility to be treated to ensure compliance ahead of disposal.

The Solution: Onsite testing with IDEXX Tecta

To mitigate costly reactive downtime and remedial testing in the event of a non-compliant sample, Cog Moors needed supplementary internal testing capabilities for regular, operational testing and rapid results.

The Tecta system offers automated analyzers with either 4 or 16 incubation chambers, depending on throughput requirements, and user-friendly cartridges that require minimal sample preparation. The system can simultaneously detect total coliforms and *E. coli* in 18 hours or less, without the need for input or visual interpretation from a laboratory technician.

The Tecta system can also test for fecal coliforms and enterococci. The system employs an enzyme substrate

detection method coupled with a proprietary polymer partition technology to deliver accurate and timely test results. The instrument can detect positive samples faster than traditional 18- or 24-hour methods, and highly contaminated samples can return positive results in as little as two hours. Results are automatically emailed, eliminating the need for technicians to be in the lab when the results are ready, and enabling prompt action in the event of a result over an action limit.

The Tecta system is also extremely easy to use, even when testing complex biosolids samples. "Maintaining cleanliness and aseptic technique during sample preparation is critical for us. Sample preparation with Tecta is very easy, with fewer opportunities for contamination. This means we have a high degree of confidence that our readings are correct when testing with Tecta", says Des Devlin.

"Cog Moors' advancements in adopting technology such as the IDEXX Tecta for biosolids testing mean that it can be used in parallel to official laboratory testing. Dr. Des Devlin now carries out regular internal biosolids testing every 2 weeks using the IDEXX Tecta B16. In the unlikely event of a sample with *E. coli* levels in excess of 1,000 CFU per gram, the team can now respond proactively and initiate any remedial action to avoid costly downtime and excess testing.

Dr. Des Devlin has even offered the Tecta to other divisions of Welsh Water on occasions where they have needed to quickly test potentially problematic water pollution events. With the help of the Tecta system, Cog Moors is better able to proactively protect public health, maintain operations, and fulfil its role as a key supplier of essential services in the region.



Results: Less downtime and better compliance

Since initiating internal testing with Tecta, Cog Moors has not had any failures onsite. This has resulted in major savings due to less downtime, remedial testing, and fewer logistics costs associated with finding alternate disposal methods. The Tecta system has also allowed Cog Moors to be more confident it is maintaining compliance: "if we get results the next day, as opposed to waiting five days, like we do from an outside laboratory, we're in a more compliant space straight away."

Cog Moors' adoption of IDEXX Tecta marks a significant advancement in biosolids management for Welsh Water. By integrating rapid, reliable onsite testing, the facility has strengthened its ability to maintain regulatory compliance and minimize costly disruptions. This proactive approach not only protects the environment and supports local agriculture but also exemplifies the value of innovation in wastewater treatment. As industry challenges evolve, solutions like IDEXX Tecta will be essential for utilities seeking to balance efficiency, safety, and sustainability.

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Learn more about IDEXX Tecta at
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