

Thermo Fisher Scientific Trade Effluent Monitoring at Basingstoke

Pollution & Process Monitoring Ltd., (PPM) were initially approached in May 2015 to supply analytical instrumentation to continuously measure the trade discharge, at the Basingstoke production facility in Hampshire UK.



The initial installation comprised the Proam ammonia monitor and the Chemitec ortho-phosphate analyser. These instruments were pre-mounted by PPM onto PVC back-panels, to simplify the site installation. Sample preparation and reagent storage was also integrated. After several years of operation, the client asked PPM to scope a more comprehensive suite of instruments, covering key water quality parameters.

The purchase order for a new bespoke measurement system, was placed in



November 2017 and the installation was made the following spring. A large walk-in analyser kiosk, measuring 2.5 x 2.5m with wet and dry sections, was equipped with a comprehensive array of instruments. Pre-installation included internal lighting, heating, sample pipework, electrical distribution and local isolation to each appliance. The analyser suite included continuous measurement of Total Organic Carbon (TOC), Ammonia, Ortho-phosphate, Sulphate, Sulphide, and Free Chlorine. A common controller continuously

reporting pH, Conductivity and Turbidity was also installed to display and output the measurements from the individual sensors, mounted within a common sample break-tank.

Additionally, the client initially required the possibility to collect discrete samples to enable further laboratory investigation, so a refrigerated automatic sampler was also installed for this purpose.



Since the Basingstoke site manufactures cell culture media, the effluent stream associated with the associated production processes can be problematic for



analytical measurement. Consequently, PPM installed their membrane filtration for sample preparation removing biology and suspended solids, prior to analytical measurement. Additionally, automatic compressed air cleaning was integrated. The regular air blast system helps to strip biofilms off the membrane surface reducing maintenance.

Instruction on operation and maintenance was given during commissioning to the relevant site engineers who would then perform

simple duties such as changing reagents and periodically cleaning filters. Service engineers from PPM attend site, on a monthly interval to perform more



comprehensive maintenance, validate performance and ensure the suite of instruments continue to provide reliable measurement.

PPM also manages the supply of reagents and consumables using the Company's internal stock replenishing system.

The instrumentation has allowed Thermo Fisher Scientific to optimise the treatment plant, to improve the quality of their trade discharge and demonstrate compliance to the local water authority. All of the instrument signals are connected to a common signals terminal box, interrogated by the Siemens PLC system. Should the instruments detect any parameter falling outside compliant set points, the PLC control system can then operate a Rotork valve to divert the treated effluent for a second pass through the treatment plant. The measurement system also produces healthy status signals to provide additional assurance.

Since the organisation operates within the life science sector - manufacturing important culture media used for pathogen testing such as COVID-19, the water quality monitoring installation has been deemed critical to site operations. PPM has therefore continued to attend site during the pandemic, observing social distancing measures to mitigate risk. With the instrumentation contained within a dedicated walk-in enclosure, this complete segregation from day to day operations, has proved very beneficial especially during the pandemic period.

For further information on how PPM can support your instrumentation requirement please contact:

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