

Protoc TOC analysers at Heineken continue to optimise effluent quality and reduce operational costs

Introduction

The Heineken - John Smith's Brewery located in Tadcaster, use eight Protoc TOC analysers to monitor key effluent streams and proactively manage their site effluent. After ten years of continuous operation, the instruments are still performing reliably and are an integral part of the Company's environmental compliance. The site has used the Protoc analysers to gain a better understanding of upstream processes and reduce the load entering the on-site treatment facility. Improved measurement and control, has improved effluent quality and reduced operational costs.



Image: The Tadcaster Brewery was established in 1758 and is Yorkshire's oldest Brewery

The selection process

In September 2004, John Smith's Brewery located in Tadcaster, decided to investigate how they could monitor their effluent quality and identify product loss. They approached Pollution & Process Monitoring Ltd (PPM) to discuss their requirements and design a suitable monitoring solution.

To simplify the delivery of the project, the Project Manager at John Smith's, wanted a complete turnkey package from a single supplier. This would include a number of reliable on-line analytical instruments some pre-installed onto back-panels and others within walk-in

GRP kiosks, complete with lighting, heating, sample delivery, sample preparation and pre-formed sample pipe-work. Additionally, consideration was given to whether the same Company, could provide the on-going service support. The Project Manager identified that PPM specialised in providing complete turnkey packages and had a team of highly trained instrument engineers, providing after sales service.



Image: Some of the instruments were pre-installed by PPM within a GRP analyser kiosk simplifying site installation and providing a secure weather proof housing

Analyser reliability was also a critical consideration. The project manager contacted a number of producers in the Food and Beverage sector which already had the Protoc analyser technology installed, to establish that the instrumentation was suitable for the brewing industry and that these instruments were properly supported. After receiving positive feedback, John Smiths asked PPM to attend site, make recommendations and prepare a monitoring proposal.

A site survey was conducted by PPM

After conducting a comprehensive site survey, to evaluate the possible monitoring locations across the site drainage system, PPM identified seven key locations:-

- Beer Destruction
- Brewhouse
- Filtration

- Kegging
- Canning
- Bottling
- Fermentation

With such extensive monitoring in place, it was concluded John Smiths would be able to pinpoint any issues from specific production areas and ultimately improve effluent quality. The final installation of the Protoc analyser technology including pre-fabrication, was finally completed in March 2005.

The Protoc technology plays an important role in the site's operation and environmental compliance

Future expansion of the Brewery was also being planned however the local Yorkshire Water treatment plant was not capable of handling any further load from the proposed expansion. Consequently, John Smith's decided to build an on-site effluent treatment plant, after which the Protoc analyser technology then played a key role in controlling the load entering the treatment facility and ultimately ensuring compliance to the imposed discharge consent.



Image: Protoc 300 TOC analyser with Paper Band Filtration sample preparation system

The Brewery is now part of the Heineken Group and the site utilities operator, Vinny Empsall takes care of the routine operation of the PPM instrumentation.

Vinny says that “The Protoc TOC monitors still play an important part in the Brewery’s operation, any potential anomalies such as a leaking valve from the Brewhouse are quickly identified by the instruments”.



Image: The analyser kiosks were located immediately close to the measurement locations

Since making the installation, it is acknowledged that a large reduction in effluent load has been achieved reducing the demands on the effluent treatment plant with a significant reduction in associated energy use and operation costs. The analysers provide a comprehensive picture of effluent quality from key production areas which is summarised in a weekly report, circulated to all key personnel.

Vinny also said “The auto zero and calibration feature ensures the monitors are self-checking, giving confidence in the results we are seeing. This is an important feature.”

After more than 10 years operation, Heineken have recently replaced one of the original TOC analysers and decided to relocate the instrument into a fully engineered outdoor kiosk, providing improved access and weather protection.

Since making the initial installation, Heineken has also added an eighth monitoring location. A further Protoc analyser was installed to provide continuous measurement in the Brewery



yard to monitor the surface water discharge to a local water course to ensure rainwater collected in this area was free of contamination.

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