Go with the flow

ClipperTech recently installed a system for Thames Water that features very sophisticated technology.

ClipperTech was established in 1998, initially to service the packaging sector of the food and industrial market with aluminium clip closures and clamping machines (both manual and fully automatic). The automatic clamping machines are sophisticated electro-mechanical devices capable of producing packaged casks of Chubbie at a rate in excess of 70 pieces per minute.

However, as this was a very narrow market sector, ClipperTech diversified into the instrument and process control business area while keeping a firm presence within the packaging industry. Following this development, ClipperTech has evolved into a specialist in process control engineering and environmental monitoring equipment, with a problem-solving capability. The company prides itself on supplying the most appropriate equipment for each individual application, and as such is a distributor for a number of international companies like Siemens, Aquamatic Ltd, ETH Electronics, Fluidsenser, Trojan UV, Pulser, Hydrosion and also Lorenzo Barross.

Hampton Court

One of the company’s most exciting contracts was completed as recently as July 2002. ClipperTech was approached by Costain who was contracted for Thames Water at Hampton Court, one of the biggest water treatment sites in the UK.

The initial contract was a consultancy basis regarding the installation of two flow meters in 78” diameter existing gunmetal lined pipes. The project was to install chlorine dosing and solve the problem proved by close proximity of the chemical mixer just up stream of the flow measuring point.

The initial design had compromised the installation of the flow meters. ClipperTech provided a solution using a flow metering system utilising multi-path ultrasonic technology to provide stable and accurate flow rate in what would normally be an impossible situation for other types of flow meters.

As the chemical mixer provides high levels of turbulence, most flow metering systems require significant upstream conditions to avoid this turbulence. ClipperTech provided a system from HydroVision, its partner in Germany that was able to operate in these difficult conditions and not only provide a stable signal but provide accuracy better than one per cent.

ClipperTech was then contracted to supply, install and commission two systems including the pipe support bands. The flow signal from each system is used to control the chlorine dosing for a significant amount of the London population.

Allister Marshall, engineering administration manager at ClipperTech, explained: “The new type of measuring philosophy we used at the Hampton Thames Water Project is bang up-to-date with the latest technology.

“One main feature of our system is that we can handle an asymmetrical velocity profile, because we use a new integration algorithm which is called OWSIS (Optimal Weighted Integration for Circular Sections). This new algorithm was developed at a Swiss University and is well approved at different application. When using this algorithm, an increase in accuracy down to less than one per cent is possible. Most older/current systems can handle this new algorithm. Their accuracy is two per cent as they operate with a simple Swiss-Jacobi algorithm, and often the technology is rather old. Most have only analogue signal processing, while our flow meters are operating digitally.

Each signal is first memorised and then analysed. We can find some characteristics of the signal, and perform analysis on the shape for example.

He continued, “Most other systems at the moment are operating with a trigger level, so when this trigger level is reached, the next zero crossing is detected. This means there is no way to analyse the signal, plus noise and other disturbances can’t be filtered out. The OWSIS System far out-performs the accuracy and complexity of most other systems in operation.”

Reinforcing ClipperTech’s premium technology offering is a wide range of services, which enable the company to be a reliable, high quality supplier to its customers. For example, ClipperTech has extensive experience in installing a large range of instrumentation and control equipment, which complies with IEE regulations. ClipperTech’s commissioning team is able to complete commissioning of instrumentation and control systems, not only for its own distributor products but also for a full range of instrumentation and control equipment.

Supporting these terms is a service centre for a number of major suppliers. ClipperTech can also provide full back up service both on and off-site on non-distributor ranges of instrumentation and control equipment. Calibration can be provided on a full range of instrument systems from flow measurement to online analysers.

Primary flow structure surveys are also a speciality of the company, and ClipperTech will attend site to carry out full surveys to provide a detailed report to ensure compliance with British Standards of all flow structures including weir and flumes. Another survey service offered by ClipperTech are for both equipment and radio for MP1399 and MP1411. Assistance can also be provided to complete relevant WA documentation and path-profiles can also be supplied. In addition to this wide range of services, ClipperTech is also happy to offer technical advice at any time of day.

It is this wide service offering that helps the company win contracts such as that with Scottish Water Solutions, where ClipperTech was engaged as the main contractor to provide supplementary UV wastewater treatment at Hatton of Cruden in Aberdeenshire. The site had been failing consent and ClipperTech was contacted about a potential solution. ClipperTech not only supplied all the equipment but also provided the civil works, mechanical, electrical and commissioning. The project had a very short timescale and the design, build and installation was completed within three months.

In fact, ClipperTech is no stranger to working in Scotland as a previous project for Scottish Water Solutions illustrates. In 2006 the company was involved in the early design stage of the WESTFIELD WWTP project, as there were initial difficulties in providing a method to split the incoming flow to the works in a ratio of 60:40 using only hydraulics. This was further complicated by the requirement to have control over the storm overflow to meet the Environment Agency Consent.

ClipperTech was contracted to design, manufacture, install and commission the complete inlet works between the inlet screen and the existing and new wastewater treatment package plants.

The company used a novel design of twin flumes to achieve the 60:40 split and a complete inlet channel with adjustable double-sided weirs to provide the storm water discharge control. Again new ideas were implemented to provide a continuous measurement of both total flow and flow to each split, using software developed by ClipperTech. This project we believe is the first of its kind in Scotland."

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