

HYCONTROL

LEVEL MEASUREMENT SOLUTIONS



ATEX Level Monitoring & Multi-Point Display Application



ATEX level solution gives Centec information where they need it



ATEX-certified level measuring equipment installed by **Hycontrol** is providing important contents monitoring data and overfill prevention at **Centec International's** chemical storage farm in Cheshire.

Established in 1991, Centec is a specialist chemical recycler, reprocessor and manufacturer. The ATEX zoned storage farm, consisting of sixteen large tanks of various capacities, has been part of a strategic expansion for the company to meet the growing need for its unique services. Originally the tanks were not fitted with any measuring sensors and in order to provide accurate contents measurement Centec had initially investigated the retro-fitting of load cells. However this option presented a number of problems related to the high costs of the equipment and additional structural engineering work required.



At this stage Centec consulted Hycontrol, who have extensive experience in the installation of high accuracy level systems for designated hazardous areas. After a site survey, Hycontrol engineers recommended the fitting of their ATEX certified Reflex VF03 TDR microwave sensors. Compared with load cells, TDR sensors provide a very straightforward, cost effective solution for such applications, with installation requiring minimum engineering work and causing little or no operational disruption.



Initially Hycontrol's ATEX-trained engineers fitted TDR sensors via flanges at the top of four of the tanks, with the stainless steel conducting probes extending down to the bottom of the vessels. These were connected to a bespoke 16 point instrument and alarm panel, located 35 metres away in the weighbridge office within the safe zone.

TDR (Time Domain Reflectometry) technology, originally used to detect breaks in subsea cables, uses pulses of low power microwaves sent along the sensor's stainless steel conducting probe. At the point where the waves meet the air-product interface, they are reflected by the product back along the

probe. The measured time between emission and reception back at the sensor head is proportional to the distance travelled. This information is then converted to the level in the tank.

The measuring principle is unaffected by the presence of vapours or changes in pressure, temperature, viscosity, or dielectric constant, making it ideal for tanks containing chemical solvents. The probes, which are durable and highly reliable, allow a very narrow measuring profile up to a maximum range of 24 metres. This is particularly useful for measurements in tanks which have internal structural supports.

Following successful validation of the original four TDR units, Hycontrol have installed sensors on the remaining 12 tanks. Although the TDR system is set up to provide an early warning high level alarm (HLA) for each tank, following advice from Hycontrol, Centec have now invested in an independent high level alarm system (HHLA) based on Hycontrol's ATEX-certified TF series of tuning fork sensors, mounted at the top of each tank. Both sets of sensors are connected to the designated alarm control



panel, activating visual and audible alarms should levels in any tank rise above a pre-determined level. This hardware redundancy provides a 'belt and braces' approach in the unlikely event that the TDR system should be compromised. The robust TF sensors are very easy to install and are available in a range of flanges and fittings. For this application the wetted parts are made from 316 stainless steel (a PFA coated version is available if required).

The completed system now includes a mimic chart recorder display panel, enabling operators and management to view tank level information via an Ethernet connection.

Centec's Project Manager **Lucian Davis** is pleased with the overall system: "We now have a very reliable and accurate contents measurement system with critical data available locally and remotely. We take health and safety very seriously and any spillages caused by tank overfilling can be very dangerous, expensive and potentially cause major environmental problems. The belt and braces overfill alarm system prevents any such occurrences happening."



Note: Established in 1991, Centec (the name is derived from 'Centre for Environmental Technology') has established itself as a UK leader for chemical waste recovery and recycling, with particular expertise in specialist solvents. Centec help recover products worth millions of pounds for clients which would otherwise be lost, for example by taking a former waste stream and recovering valuable components. This both creates additional value streams and vastly reduces the quantity of waste finally produced. Customers include leading blue chip companies such as Shell, GlaxoSmithKline, ICI, GB Oils and DuPont.

To read more of our applications in the chemical, food & beverage, nuclear, water & waste, recycling, quarrying and metals industries, please go online at hycontrol.com

Hycontrol UK (Head Office)
Orchard Street
Redditch
Worcestershire
England
B98 7DP
Tel: +44 (0) 1527 406800
Fax: +44 (0)1527 406810
Email: sales@hycontrol.com
Web: www.hycontrol.com

Hycontrol China
Room N601 Peking Times Square
Hui Zhong Li
Chao Yang District
Beijing 100101
China
Tel: +86 108 487 1101
Fax: +86 108 487 1033
Email: simon@hycontrol.com.cn
Web: www.hycontrol.com.cn

HYCONTROL
LEVEL MEASUREMENT SOLUTIONS
