



## ***Bitumen Safety Level Monitoring Application***



## Accurate measurement and alarm system puts bitumen safety first

A bitumen safety system supplied by level measurement specialists Hycontrol is ensuring Dewsbury-based Newlay Asphalt Ltd meet the latest safety guidelines as laid down by the Refined Bitumen Association (RBA).



Newlay Asphalt Ltd recently commissioned a new Asphalt Plant in Dewsbury and consequently took delivery of two new 30,000 litre horizontal bitumen storage tanks. However, the tanks were only fitted with basic mechanical float meters, which provided both level contents and the high level alarm. In the event of the failure of this single measuring instrument, there would be a risk of hot bitumen spillage during the filling process. As a result, Newlay Asphalt Ltd decided to invest in a Hycontrol bitumen safety system that provides continuous level measuring, a high level alarm (HLA) and a totally independent high-high level alarm (HHLA).

The RBA guidelines stipulate that in order to avoid product spillage whilst the delivery hose/line is being cleared, the HLA should be set to trigger an alarm at the available capacity of the tank less 10%. The HHLA should be set to warn operators that there is only 7.5% of the available tank capacity remaining.



Hycontrol have extensive experience in providing effective RBA compliant bitumen safety systems based on their Time Domain Reflectometry (TDR) technology\*. Unlike many other level measuring technologies, Hycontrol's VF03 TDR sensors are unaffected by product build-up on the probes. Performance is also not affected by changes in pressure, temperature, dielectric constant or viscosity, making TDR the perfect solution for hot bitumen. For this application, the bitumen levels are measured using Hycontrol's high temperature VF03 TDR sensors. The 2.35 metre stainless steel probes are fitted to flanges at the top of the tanks and extend down into the hot bitumen. The probes allow a very narrow measuring profile up to a maximum range of 24 metres and this is particularly useful for measurements in tanks which have internal structural supports.

In line with RBA safety guidelines, the Hycontrol system at Dewsbury provides a secondary independent system to prevent over-filling, based on their high level ME81 capacitive sensors mounted on flanges at the top of the tank. Traditional capacitance switch technology has measurement limitations, mandating that different versions are required depending on the dielectric constant and conductance of the material being monitored. By comparison, Hycontrol's advanced ME Series use the same transmitter and sensor for all applications, simplifying maintenance and minimising inventory outlay. The two sensors are connected back to a bespoke Hycontrol instrument panel featuring digital indicators displaying the levels and ullage in each tank (as pictured right) and high level warning beacons with a lockable mute.



Newlay's site manager Jamie Brown is very pleased with the Hycontrol system: "When the tanks arrived with basic float meters and without an independent HHLA we decided to fit a complete new integrated system. Hycontrol were very helpful throughout the conversion process, working closely with our engineers during the commissioning process. We take health and safety matters very seriously and we are now confident that we have a fully compliant safety system."

*\*TDR technology, originally used to detect breaks in subsea communication cables, uses pulses of low power microwaves sent along the conducting probes. 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. This information is then converted to the level in the tank.*

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