

Time to Move On

Setting a new Level for Reliable Measurement

About Endress+Hauser's vibronic tuning fork – Liquiphant

Developed in the late 1960s by Endress+Hauser, Liquiphant tuning forks have become widely applied in a number of process automation industries. They have become the preferred technology for prevention of overflowing and low liquid levels (heater treaters) in tanks, with more than 3 million devices installed worldwide.

Compared to other level measurement alternatives, such as mechanical floats, Liquiphant offers a number of benefits, including:

- self-monitoring
- self-cleaning
- detection of tank overflow or overheat
- resistance to clogging or freezing
- no wear and tear (due to the lack of moving parts)

The standard built-in intelligence and self-diagnostics of Liquiphant allows customers to simply “fit and forget” about their high and low tank level switches. Liquiphant switches are incredibly reliable and can be simply retrofitted in existing installations in most cases.



A global company active in the Alberta oilfields was looking to increase the level of safety in its upstream facilities and, at the same time, to improve efficiencies and reduce maintenance costs. Endress+Hauser vibronic tuning forks provided the solution they were looking for and have now been installed as high-level switches as a standard feature on their tanks.

The company decided to abandon traditional float switches after a spill occurred on a remote well site, due to a failure of a traditional device. The mechanical switch became plugged and was no longer able to indicate a high-level scenario, allowing an emulsion tank to overflow and about 3,000 barrels of heavy oil and water were released before it was noticed.

A switch replacement program was instituted as a result, mostly carried out in 2014. An additional benefit of the program was improved efficiencies and usage of maintenance technicians. Unnecessary trips into the field were eliminated, while process safety was improved. “We can now focus on other things in the area, without having to worry about these high-level switches anymore,” says the maintenance lead for the company’s eastern Alberta region.

The company operates about 700 remote well sites in the area and was able to improve their maintenance efforts by 25% after replacing the switches.

“The timing of the replacement program worked out perfectly, as it allowed us to improve our efficiencies just when we needed it,” says the operations manager involved, referring to the downturn of oil prices in late 2014.

About heavy oil in Canada Most of Canada's conventional reservoirs are producing heavy oil at API gravities around 10. The oil density is very close to the density of water, and the viscosity can reach 8000 cST. Needless to say, the crude oil is very sticky. In addition, the environment of the region, with ambient temperatures dropping to -50°C, creates additional challenges for the upstream oil and gas segment.

Thousands of remote well sites throughout the provinces of Alberta and Saskatchewan are producing heavy oil from depleted conventional reservoirs through enhanced oil recovery methods, such as water flooding.

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