dBi10 Intelligent Ultrasonic Transducer proves its reliability against thick arduous foam.

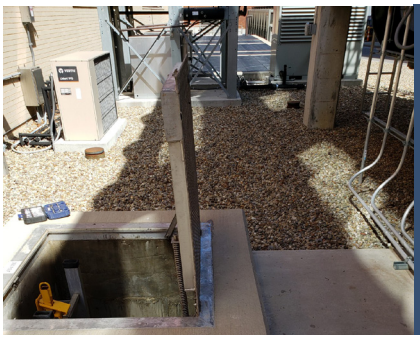
Pulsar Measurement was approached by a customer in the US that was trying to achieve accurate and reliable level measurement readings in an 8.5 m (28 ft) concrete tank, with a flat concrete top. The tank was measuring partially treated wastewater at an onsite wastewater treatment plant at a medical center. It provided some challenging conditions as there was various pipe and metal works in the measurement path of the transducer, as well as approximately 203 mm - 355 mm (8 in - 14 in) of heavy foam.

The application was a sump tank that was used as a holding tank. It is a part of the wastewater treatment process to hold partially treated wastewater that is on its way to primary, secondary and tertiary treatments and ensures the medical center has a continuous supply of clean water.

The end user had previously tried two other ultrasonic systems that both proved unsuccessful on the application. Originally, the first ultrasonic system was installed in the center of the tank where there is considerably less foam, but it was not possible to obtain accurate level readings. The dBi10 was too large to fit in the location where the original two ultrasonic systems failed, so it was placed closer to the wall of the tank where the measurement would be more challenging. This would turn out to not be a problem for the dBi.

The level inside the tank was required to remain between 1.8 m - 2.4 m (6 ft - 8 ft). Anything outside of this measurement range would set a relay alarm off. The pipe and metalworks within the tank proved to be no match for the dBi transducer and DATEM echo processing algorithms were used to allow the transducer to focus in on the true level.

Both radar and ultrasonic technology are unable to 'see through' foam to the water level, however using proprietary software Pulsar Measurement can program the transducers to account for these challenges to provide accurate and reliable measurement each and every time.



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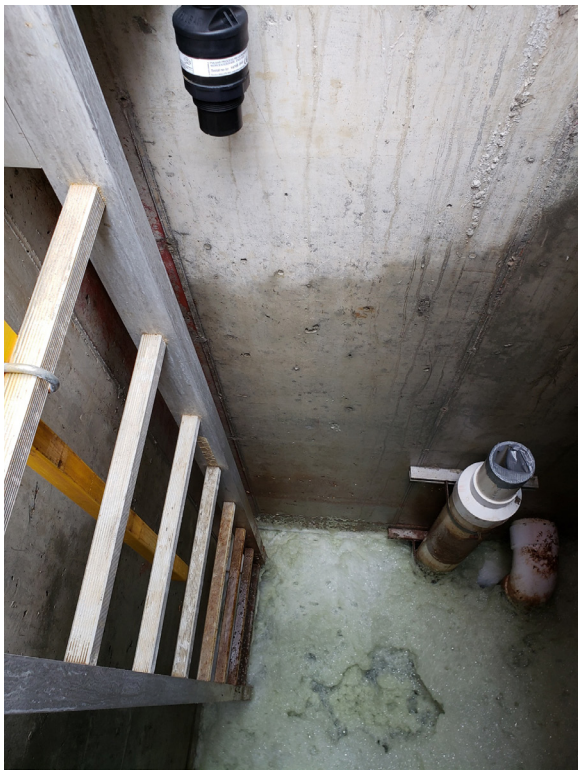

The dBi10 loop powered ultrasonic system was integrated into the end user's existing system. This provided them with the flexibility to mount the sensor in a more accessible location without having to notify operators of changing conditions in the tank. In addition, the end user had the facility to connect to PC Suite, Pulsar Measurement's unique software that allows easy setting of parameters and the viewing of echo traces. This enabled Pulsar Measurement's dedicated support team to log in remotely and help the customer fine tune the dBi10 in very tough application conditions.

As a result, the end user was able to set relay alarms and automatically turn pumps on to maintain the appropriate level within the tank. The dBi Intelligent Transducer emits a high frequency sound which reflects off the fluid, and in this case, the foam, in order to provide the customer with an accurate level reading. The dBi10 was able to outperform other ultrasonic systems because of its ability to adapt in any situation. Unique DATEM (Digital Adaptive Tracking of Echo Movement) software provides transducers from Pulsar Measurement with the ability to distinguish the true echoes of the fluid from the background noise. In this application it was the thick 203 mm - 355 mm (8 in - 14 in) foam blanket, the ladder and pipework within the tank. Our end user could see the echo traces and how the dBi10 was performing right from their PC or laptop, and was able to fine tune the transducer to maximize accuracy.

This application has once again cemented Pulsar Measurement's ability to produce state-of-the-art ultrasonic technology that provides quick, simple, and easy integration to existing site SCADA systems, that is able to give robust and reliable measurement even in the most challenging conditions. Our unique DATEM processing software can enhance the capability of ultrasonic instrumentation and is able to ignore competing echoes to provide a truly accurate measurement.

More Information

dBi HART Intelligent Transducer Series:
https://pulsarmeasurement.com/dbi-hart

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Delivering the Measure of Possibility

INFO@PULSARMEASUREMENT.COM

United States
+1 888-473-9546

Canada
+1 855-300-9151

United Kingdom
+44 (0) 1684 891371

Asia
+60 102 591 332

Oceania
+61 428 692 274

pulsarmeasurement.com

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