



Sludge level measurement in high-efficiency sedimentation tank

Beijing Ben-Hua (BBH), Pulsar Measurement distributors in China, were approached by Taihe Sewage Treatment Plant in Shanghai for help with sludge level measurement on one of their sedimentation tanks.

What is a sedimentation tank?

A sedimentation tank, also known as a settling tank or a clarifier, forms part of a modern system of water supply or wastewater treatment. A sedimentation tank allows suspended particles to settle out of water or wastewater as it flows slowly through the tank, helping the purification process.

A layer of accumulated solids called sludge forms at the bottom of the tank and is periodically pumped through the system for removal. Sedimentation tanks are typically about 3 meters (10 feet) deep and several tanks are usually

provided and arranged for parallel operation. Modern sedimentation tanks are usually equipped with mechanical scrapers that continuously push the sludge at the bottom of the tank towards a collection hopper, where it is pumped out.

What was the problem?

The customer required a very accurate and reliable sludge level sensor for this application to monitor sludge level as it is one of the parameters for the plant's control system. Floc is always present at the tank and could not be monitored accurately with the existing sludge level sensor.

Floc is defined as a loosely lumped mass of fine particles. In this case, during the water treatment process, some of the particles are clumping together and settling on the bottom of the sedimentation tank ready to be treated.

As the end-user was unable to get an accurate measurement of the sludge blanket due to floc particles in the water, using their existing sludge level measurement method, they contacted BBH for help. They attended the customer's site where they conducted a trial with the Pulsar Measurement Sludge Finder 2 (SF2) and Viper Transducer,



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specifically designed for sludge blanket measurement. During the trial, the readings from the Sludge Finder 2 were cross-checked and verified with an underwater high-resolution camera. There was a good correlation between the SF2 readings and manual level measurement with the help of the underwater camera.

The Sludge Finder 2 and Viper Transducer

The Sludge Finder 2 and Viper Transducer is a unique two-part system from Pulsar Measurement that uses proven echo processing algorithms to identify the sludge interface level using state-of-the-art technology that can only be found in this unit.

The unit works by measuring the distance between the sludge blanket surface and the water level. Once the sludge has reached the required density/level, the accompanying controller will switch on the pumps and pump the sludge through into the next part of the treatment process.

The Pulsar Measurement Sludge Finder 2 has a standard in-built high floc alarm feature. The intrusion window for the application appears in the top left corner of the echo profile display and is an indicator that can be tailored and programmed according to different site conditions. The unit can pick up on high floc level readings and the intrusion window acts as an indicator that shows if the floc level is reaching the alarm stage.



Image of the application from the underwater camera

The end result

As a result of the trial and expert knowledge shown by Beijing Ben-Hua, the customer gained the accurate and reliable readings they were looking for and were very satisfied with the product. They decided to replace the existing measurement unit with a Pulsar Measurement Sludge Finder 2 measurement system. Commenting on the application, a representative from Beijing Ben-Hua said, "We are glad the customer is satisfied with the trial as it provides the accurate and reliable data that they are looking for."

Beijing Ben-Hua was established in 2009 and is based in China. They focus on bringing high-quality instruments and overall solutions for domestic sewage plants and water purification plants. To find a local Pulsar Measurement partner in your region, visit the Pulsar Measurement website.

More Information

Sludge Finder 2: www.pulsarmeasurement.com/sludge-finder-2

Partner Locator: www.pulsarmeasurement.com/partnerlocator



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