Measuring Drilling Fluid Level in Mud Tanks:

Ultrasonic Pit Level Sensor

Application

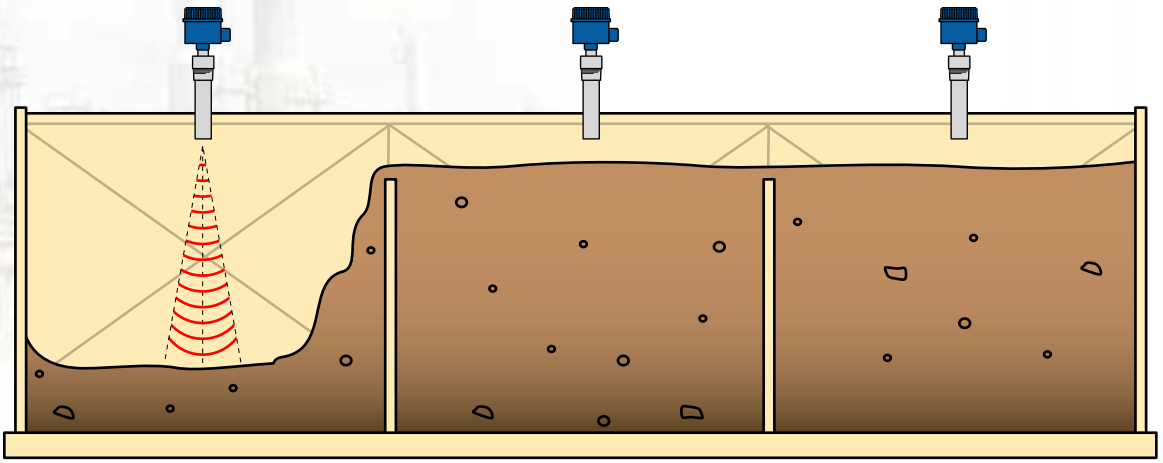
Drilling fluid, commonly referred to as “mud”, is stored in a series of tanks that are of rectangular steel construction, with partitions that hold about 200 barrels each. These tanks, located at both onshore and offshore rigs, are set in series for the mud circulation system. This system pumps the mud down through the drilling pipe where it cools and lubricates the drill bit. It then flows back to the surface and carries away the formation cuttings.

Problem

The level in these mud tanks is measured by a Pit Level Sensor that provides extremely important data for the operation of the drilling rig. The total volume of fluid is continuously monitored to identify any net gain or loss of fluid. Any increase in net fluid indicates that some other substance, such as oil, water, or gas, is entering the process. A decrease in net fluid means that fluid is being lost in the formation. Both of these situations are extremely dangerous and could result in a blowout.

The mud in these tanks is highly agitated and contains large amounts of solids that are suspended in the fluid. The solids in these tanks can cause buildup on the sensing device which results in re-occurring maintenance for float level technologies such as magnetostrictive. Thousands of rigs worldwide have eliminated these maintenance requirements by using ultrasonic technology.

The level in these tanks moves extremely quickly and requires a technology that can track the level in real time. Response time is critical in the mud circulation system to quickly identify any net change in mud volume and take the appropriate action.



Solution

The Drexelbrook USonic™ has proven to be a superior product to the current installed base. The USonic has several advantages over the competition including:

- **Response Time** - The USonic has a response time of less than 1 second. The competition that has been used in this application has a response time of over 5 seconds.
- **Explosion Proof** - The USonic has been approved by FM and CSA as intrinsically safe and explosion proof without barriers for Class 1 Div 1 locations.
- **Cast Aluminum Housing** - Rugged construction for abusive environments and explosion proof installations.
- **Accuracy of 0.15%** - The accuracy on the USonic is the best in the industry with an accuracy of 0.15% of the sensing range. The USonic has a better accuracy than some radar devices.
- **Smart Gain Circuitry** - This proprietary technology is a standard feature on the USonic that ignores unwanted reflections from internal obstructions.
- **Integral Electronics** - Offers a compact design that is required for this application.
- **Competitive Price** - The USonic offers better capabilities at a cheaper price than the competition.

Target Customers

Customers that provide Drilling Instrumentation, Mudlogging, Rig Monitoring Systems, Pit Volume Totalizes, and Drilling Well Services.

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