NIVELCO CASE STUDIES

NIVELCO INSTRUMENTS IN THE OIL INDUSTRY – HUNGARY

Rotary Drilling Co. drilling fluid plant in Algyő

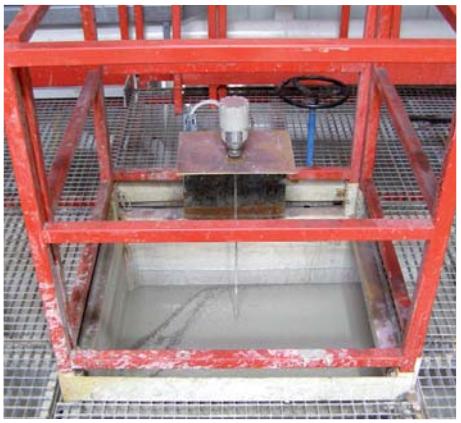
Today's modern drilling technologies use special technologic liquid – for drilling of hydrocarbon wells – so-called drillingmud. This is usually a mixture of milled bentonite and water providing hydrostatic pressure to maintain the wellbore stability and help the drilling assembly to be brought in and out of the hole, or help the removing of excavated soil by making circulation. In the drilling fluid plant different quality, aged for average 24 hours drilling mud are produced with suitable thixotropic properties for different composition of soil structures. These materials were produced at the place of the drilling and after the usage they were transported to slurry deposits or let into an infiltration trench.
Rotary Drilling Co. decided to phase in new German model technologies, where producing and processing of drilling mud are not performed at the place of the drilling, but in a site for this special purpose to provide higher efficiency for this technology, including regeneration – re-adjusting the properties – of drilling fluid.
In addition to these advantages, the used drilling mud does not contain explosive components, when got back to the site, so Ex-technology or application of Exinstruments is not necessary.

On the site of the industrial park in Algyő has been established:

- 2000 m^3 containers
- 20 m^3/h saltwater filtering
- 4 m^3/h capacity chemical separation technology drilling fluid plant,
- 17 pieces of 120 m^3 temporary tanks,
- 20 m^3, shared 20+10 m^3 mixing tanks.

The outside tank-park contains different quality, density, or diverse doped mud. Level transmitters and switches

control the pumps through the process automation system and provide information for the operators, who can interrupt the processes.
NIVELCO's EchoTREK SEP-325 ultrasonic level transmitters were installed for level metering of the tanks. These units are 2 wire, loop powered versions with HART communication, working from 24V DC. Measurement of the tanks of 15 m height with a relatively small diameter is very difficult, so accurate installation of the ultrasonic sensor and specialized programming was necessary.
4–20 mA signals of the transmitters are processed by a PLC system. The data are recorded and used for making trends following the production and the procession of drilling mud. The system generates maximum and minimum signals from the output data to control the motored cut-off valve in the top of the tank and the pumps. NIVELCO's EchoTREK SEP-380-2 ultrasonic level transmitters were installed in the centrifugal and the mixer tanks. Taking into consideration the heavier foaming occurred by the stronger mixing, one mixer tank was equipped with MicroTREK HTR-425 microwave level transmitter.
NIVELCO's double chambered NIVOFLOAT NWP-110 float level switches sense the minimum and the maximum level in the top and the bottom of all the 17 tanks. They are applied for fail-safe indication. As they indicate



In the site of the tank park rainwater is collected to underground tanks. Rainwater tanks are instrumented with NIVELCO NIVOSWITCH RCM-400-3 vibration fork level switches. Emptying of the rainwater tanks are performed by hand-intervention based on the signals of the level switches.
The whole tank park system is controlled by VISION process visualizing system.

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