Application Bulletin

Level Measurement in Underground Heating Oil Tanks

Application Description
The central heating system for six residential towers provides heating for almost 200 apartments. A modern pellet heating system in combination with an oil-fired condensing boiler system provides a constant supply of heat and hot water. The heating oil is stored in two horizontal, cylindrical underground tanks with a total capacity of 20,000 liters and continuously measured. Measurement with a sounding rod is too inaccurate and not able to transmit continuous readings to the control system of the operator. An early warning system with emergency shutdown in case of leakage is also required. That’s why automatic monitoring of the level with a modern measuring technique is necessary here.

Process Characteristics
- Medium: Heating oil
- Vessel: Horizontal, cylindrical underground tanks
- Size: ø approximately 3 m
- Volume: Approximately 20,000 L

The Solution
The level in the underground tank is measured with TDR sensors VEGAFLEX 61 in cable version. A VEGAMET 391 signal conditioning instrument supplies power to the sensors and processes their measurement data. The signal conditioning instrument indicates the current filling level directly on site and transmits the data to a PLC as control values for invoicing. The system is also monitored for possible leakages. The ever-current measured values are transmitted continuously to the operator.

In addition, the company uses the option of sending information via SMS to local staff if limit values are exceeded or if malfunction messages are transmitted. This makes it possible to react quickly to disturbances or automatically initiate an order for more heating oil.

The Advantages
- Reduced monitoring costs through emergency shutdown
- Reliable and exact measurement
- Exact indication
- Warning system for leakage
- Automatic ordering information

Horizontal round tank for heating oil storage.