

Refinery Increased Throughput and Reduced Safety Risks with Direct Switch Technology

RESULTS

- Decreased risk of production interruptions
- Reduced safety and environmental risks
- Lowered operating costs



APPLICATION

Fuel oil buffer tank level monitoring

Application Characteristics: High temperature and high viscosity hydrocarbon

CUSTOMER

Leading refinery in southeast Asia

CHALLENGE

This refinery was having problems maintaining sufficient fuel oil storage in its buffer tank. This buffer tank is used to store fuel oil from various refinery sources and supplies fuel to refinery process heaters.

Accurate supply management of fuel oil needs a reliable level tank measurement. A remote seal DP level transmitter was originally installed on this buffer tank. However, the deposition of solids and coke on the diaphragm seals at high temperatures of 600 °F (315 °C) and the high fuel oil viscosity created inaccurate measurements.

A DP transmitter was replaced with a non-Emerson, non-contacting radar level transmitter. Heavy hydrocarbon vapors caused condensation on the antenna seal. Therefore, the previously installed transmitter could not provide an accurate and continuous level measurement due to attenuation of the signal.

The unreliable level measurement created negative business impacts on this customer. There was a high risk of frequent heater interruptions, risking plant availability and throughput. There was a high risk, and in some cases tank overfills, which caused safety and environmental incidents. Due to the unreliability of the previous level measurement, operating costs were higher as a result of frequent trips to the field by operators to verify available fuel oil supply.

The Rosemount 5301 HTHP reduced operating costs by eliminating trips to the field to verify fuel oil supply.



Rosemount Guided Wave Radar site installation

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SOLUTION

This customer's problem was solved by installing the Rosemount 5301 High Pressure, High Temperature Guided Wave Radar Level Transmitter in a 3-in side chamber. This level transmitter was not affected by the buffer tank conditions, such as: vapor condensation, high viscosity, or coke formation in the process fluid at high temperatures. Due to the Direct Switch Technology within the 5301, the transmitter minimized signal loss and ensured a high signal to noise ratio for a reliable and robust level measurement. Since the 5301 is not affected by changing densities or viscosity, the accuracy of the measurement was greatly improved.

The Rosemount 5301 Guided Wave Radar allowed this refinery to decrease the risk of production interruptions of process heaters with an accurate level measurement of the available fuel oil supply. Safety and environmental risks were also minimized due to the reduced risk of spillage. Trips to the field to verify the available fuel oil supply were virtually eliminated, thereby reducing operating costs.

RESOURCES

Rosemount Level

<http://www.emersonprocess.com/rosemount/products/level/index.html>

Rosemount 5300 Product Data Sheet

<http://www.emersonprocess.com/rosemount/products/level/m5300.html>



Rosemount 5301 Guided Wave Radar with an HTHP Probe

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