

Offshore Oil Rig Decreases Unplanned Shutdowns and Maintenance Costs with Guided Wave Radar Diagnostics

RESULTS

- No unplanned shutdowns due to level measurements
- Reduced safety risk
- Minimized maintenance costs



APPLICATION

Various applications including scrubbers and separators (low, high, intermediate, and test)

CUSTOMER

Offshore Oil and Gas Platform

CHALLENGE

The Facilities Electrical Engineer on the largest producing deepwater platform in the Gulf of Mexico was using a guided wave radar product for many of the level applications including separators and scrubbers. With processing of the dirty raw crude, it was challenging to get a reliable level measurement. Guided Wave Radar was installed on many of the level applications and worked well until the probes got coated. When the probes became coated, the units would either fail high or give a false level reading. Either situation would result in a deviation state and cause the operators to go out to the tank to investigate. Each incident could take half a day for maintenance to investigate. Several times, this caused the process to shut down. Each shutdown can cost several million dollars in lost production.

The customer was using a competitive GWR. They had tried using twin lead probes in order to get a strong signal, but these got dirty too fast and caused false signals. They then changed to single lead probes, but this resulted in a weaker signal and occasional spikes in the measurement. The only way to diagnose the problem was to go to the unit and take a waveform.

Each time a probe failed, the operators had to shut down the process, initiate the investigation, and possibly pull the probe for cleaning. This resulted in loss of production, increased maintenance costs, and reduced throughput. Hot work permits were required each time they needed to take waveforms. Walking up and down steps on the platform introduced additional safety risks – especially during inclement weather.

Rosemount 5300 Guided Wave Radar equipped with Signal Quality Measurement diagnostics allowed operators to actively monitor the signal quality as a process variable. This helped for real time maintenance of the separators and scrubbers resulting in elimination of unplanned shutdowns. Each shutdown can cost millions of dollars in lost production.



Figure 1. Rosemount 5301 with Diagnostic Suite used for monitoring abnormal process conditions.

ROSEMOUNT

For more information:
www.rosemount.com


EMERSON
 Process Management

SOLUTION

As a solution to this problem, the platform installed Rosemount 5300 Guided Wave Radars with single lead probes. The signal provided by the direct switch technology allows the Rosemount 5300 to robustly measure fluids using a single lead probe. In addition, the Rosemount 5300 was equipped with Signal Quality Measurement diagnostics. The SQM feature allowed the operators to monitor the strength of the signal as a process variable. Another key advantage was that they were able to take waveforms on the AMS System in the comfort and safety of the control room. By viewing the waveforms, they are able to tell if any drop in signal strength is due to a dirty probe or to the possible appearance of hydrocarbons in the scrubbers. This allowed them to take the proper action. The cleaning procedure was also simplified because the operators were able to flush the chambers with solvents and view the waveform to determine if the probe was sufficiently cleaned, instead of having to pull the probe out for inspection.

This customer had many positive business outcomes from the success of the Guided Wave Radar level measurement. Most noteworthy is that they have not had an unplanned shutdown due to Guided Wave Radar level measurements. The safety risks associated with going to the unit just for troubleshooting have been eliminated and the overall cleaning procedure has been streamlined.

RESOURCES

Emerson Process Management Oil and Gas Industry

<http://www.emersonprocess.com/solutions/oilgas/>

Rosemount 5300 Series

<http://www2.emersonprocess.com/en-US/brands/rosemount/Level/Guided-Wave-Radar/5300-Series/Pages/index.aspx>

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