Petrochemical Plant Reduces Risk of Incurring Higher Maintenance Costs with Cryogenic Guided Wave Radar

RESULTS

- Reduced risk of higher operations and maintenance costs
- Lowered risk of reductions in facility throughput
- Minimized risk of facility shutdowns

APPLICATION

Liquid Ethylene in Recuperation Column at 1.5 m (4.9 ft.)
Temp: -85 °C (-123 °F), DC: 1.3

CUSTOMER

Petrochemical plant in Europe

CHALLENGE

A Reliability Engineer at a petrochemical plant was tasked with improving the reliability of facility equipment. Due to aging equipment on a liquid ethylene column within the recuperation unit, he saw area to improve this unit's reliability.

Previously this customer used a displacer level measurement on the liquid ethylene column. Their displacer technology became obsolete by its manufacturer, so they needed to find a reliable level technology for its replacement. The level measurement maintains process stability within the recuperation columns.

If this customer did not replace the old technology with a compatible continuous level measurement, they risked high operations and maintenance costs associated with obsolete displacer parts. Without a reliable level measurement, the plant risked process instability and a potential future shutdown.

Figure 1: Rosemount 5301 with cryogenic seal on recuperation column

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SOLUTION

As a solution to this problem, the petrochemical plant installed a Rosemount 5301 Guided Wave Radar with Cryogenic seal and single lead probe. It is challenging to measure the level of liquid ethylene with some radar and capacitance technologies due to its low dielectric. However, the strong signal enabled by direct switch technology allows the Rosemount 5300 to accurately measure low dielectric fluids. The electronics are combined with a seal design that provides multiple layers of protection in the extreme temperature conditions. The Guided Wave Radar was mounted into the existing displacer chamber making the installation easy and cost effective.

This customer had many positive business outcomes from the success of the Guided Wave Radar level measurement. Most noteworthy is the reduction in risk of increasing cost of maintenance labor and parts. Since the Guided Wave Radar does not need calibration and provides a reliable measurement, they were able to maintain process stability thereby minimizing the risk of lost throughput and reducing the risk of process shutdown.

RESOURCES

Rosemount 5300 Series Guided Wave Radar
http://www.emersonprocess.com/rosemount/products/level/m5300b.html

Emerson Process Management
Rosemount Division
8200 Market Boulevard
Chanhassen, MN 55317 USA
T (U.S.) 1-800-999-9307
T (International) (952) 906-8888
F (952) 949-7001
www.rosemount.com

Emerson Process Management
Blegistrasse 23
P.O. Box 1046
CH 6341 Baar
Switzerland
Tel +41 (0) 41 768 6111
Fax +41 (0) 41 768 6300

Emerson FZE
P.O. Box 17033
Jebel Ali Free Zone
Dubai UAE
Tel +971 4 811 8100
Fax +971 4 886 5465

Emerson Process Management
Emerson Process Management Asia Pacific
Private Limited
1 Pandan Crescent
Singapore 128461
T (65) 6777 8211
F (65) 6777 0947
Enquiries@AP.EmersonProcess.com

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www.rosemount.com

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