

# Cost Savings and Improved Fuel Quality Made Possible By Guided Wave Radar Technology

## RESULTS

- Reduced operations and maintenance cost
- Reduced safety risk
- Improved finished diesel product quality



## APPLICATION

Diesel Hydrotreater high pressure separator level

## CUSTOMER

Refinery in United States

## CHALLENGE

A diesel hydrotreater is commonly used in refinery process to remove contaminants in the diesel fuel. In this process a high pressure separator is used to separate diesel fuel from water. The reliability engineer of this refinery was looking for a solution that would help operators believe alarm trips of the high pressure separator.

There were several technologies used in this application. DP level technology was first tried but did not work well due to changing specific gravity. A capacitance probe was installed next, but coating and contamination made the capacitance probe spike high sending a false level trip.

Due to numerous false trips, several work orders were generated every week to verify if the capacitance probe was functioning properly. This led to increased operations and maintenance cost. The false trips also reduced operator confidence in the level measurement leading to manual checks of the level through a sight glass. Once a trip was verified as false, the process was run in manual, and the level trip ignored. Running in manual introduced additional safety risks because actual high level events could be missed. Finally, lack of a valid level measurement could impact product quality due to poor separation.

*Due to success in the high pressure separator application, the Rosemount 5301 is replacing capacitance probes in other refinery applications.*



Figure 1. Rosemount 5301 Guided Wave Radar

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### SOLUTION

The capacitance probe was replaced by a Rosemount 5301 Guided Wave Radar using the same chamber. It is unaffected by changes in specific gravity or probe coating. The configuration software helped ensure that the meter was properly configured and started up quickly and correctly. This has been so successful that capacitance probes are being replaced in other refinery applications as well.

This installation enabled the refinery to save an estimated 1000 USD per work order in operations and maintenance cost. Level measurement is now reliable, eliminating false alarm trips. This leads to operator confidence in the level measurement. The process is no longer run in manual for extended periods, thereby reducing safety risk. Finally the quality of separation is improved leading to improved quality of the finished diesel fuel.

### RESOURCES

#### Emerson Process Management Refining Industry

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

#### Rosemount 5300 Series Guided Wave Radar

<http://www.emersonprocess.com/rosemount/products/level/m5300b.html>

#### Rosemount 5300 Product Data Sheet

<http://www2.emersonprocess.com/siteadmincenter/PM%20Rosemount%20Documents/00813-0100-4530.pdf>

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