

Leading Thailand Refinery Adds SIL 2 Safeguard onto Old Spherical Tanks with Rosemount 5900S 2-in-1

Results

- Easy, cost-effective upgrade by replacing radar transmitter head
- Meet SIL 2 safety standards
- No need for costly tank modifications



Application

Bulk liquids LPG storage tanks

Customer

A large multinational petroleum refinery in Thailand

Challenge

The customer owns and operates a complex crude oil refinery with a capacity of 175,000 barrels per day of crude oil, which represents about 14% of the refining capacity in Thailand, and they supply about one third of the domestic gasoline demand. Their high-quality petroleum products include Liquefied Petroleum Gas (LPG), Polymer Grade Propylene (PGP), chemical grade naphtha, premium and regular grades of gasohol, jet fuel, diesel, fuel oil, sulfur, and asphalt. Their primary focus is the Thai domestic market.

A new safety regulation from headquarters required a second level safeguarding function to be added to their tanks. The spherical tanks at the plant were designed to have only one tank opening for level measurement and were previously fitted with the Rosemount™ 5900S Radar Level Gauge. Replacing those would be a costly and time-consuming project.

Solution

The customer had the non SIL 2 version of the Rosemount 5900S radar level gauges installed, which meant they did not need to replace the complete gauge, they could in fact upgrade to the 2-in-1 which is certified for SIL 2, thereby meeting the new safety standards. The upgrade was done by replacing only the radar transmitter head, keeping and reusing the existing antenna, which dramatically reduced the cost of upgrading. No tank modifications were needed. The radar module-1 provides level data into its existing inventory loop into the DCS system for accurate and real-time data on LPG levels. At the same time, radar module-2 provides online level data into a Rosemount 2410 Tank Hub that uses 4-20 mA HART SIL 2 to connect into the safety instrumented system (SIS).

“A reliable and easy to install solution that meets new safety regulations without the need to make tank modifications.”

Metering and Offsite Manager
Petroleum Refinery, Thailand



The two radar level units are galvanically separated and fully independent.

Resources

Emerson Automation Solutions Industries
[Emerson.com/Refining](https://www.emerson.com/Refining)

Rosemount 5900S Radar Level Gauge
[Emerson.com/Rosemount5900S](https://www.emerson.com/Rosemount5900S)

Flyer
[2-in-1 Overfill Prevention Technology](#)

Article
[A Cost Effective Solution to Prevent Overfill](#)

Video
[Get Better Overfill Prevention with Emerson's Unique 2-in-1 Technology](#)



Rosemount 5900S Radar Level Gauge with LPG antenna

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