

# Gas Separation Plant Achieves Reliable, Efficient and Safe Operations with Emulation Technology

## Results

- \$45,000 savings in downtime, OPEX, and man-hours
- Cost-efficient step-by-step gauge upgrade
- Highly reliable level and volume measurements
- Compliance with authority verification requirements
- Increased safety



## Application

Level and volume measurement in spherical LPG tanks

## Customer

PTT Public Company Limited (PTT), Thailand

## Challenge

Local regulation authorities in Thailand required measurement verification from PTT, regarding volume and level accuracy in spherical LPG tanks at the company's gas separation plant. Radar level gauges from another supplier were installed to provide the measurements. These level devices were critical to plant operation and safety, but the company was concerned that the instruments were not reliable.

These existing radar level gauges were not able to provide reliable tank content and safety functions for the operational process and governmental verification requirements. At times the level values fluctuated incorrectly and then recovered again without reason. As a consequence, feeding-in and -out activities were stopped, causing feeding pumps and valves to shut off. This led to frequent downtime, preventing operation at full capacity.

Another challenge was online verification with the tank in operation. The existing gauge did not perform well due to a big bolt protruding inside the 8-in. pipe. Non-compliance with authority requirements therefore resulted in suspended tank operation.

All of these issues contributed to loss in both OPEX and man-hours.

## Solution

On each tank, the existing gauge was replaced with a Rosemount 5900S Radar Level Gauge with a 4-in. LPG/LNG antenna, specially designed for spherical tanks. This antenna has a unique built-in verification pin feature, which enables authorities to achieve real-time verification of level measurements remotely from the control room.

***"We achieved a reliable and accurate radar level gauging solution without heavy investments."***

**PTT Public Company Limited, Thailand**



*The existing radar level gauge is replaced with a Rosemount™ 5900S with LPG/LNG antenna and temperature measurement. A second radar level gauge was added to achieve measurement redundancy and improved safety.*

## CROSS-INDUSTRY

A new 4-in. schedule 10 stainless steel pipe with a matching flange (8-in. Class 300) was installed in the existing 8-in. pipe.

To further improve the safety level, PTT chose to introduce gauge redundancy. Each tank was equipped with an additional Rosemount 5900S Radar Level Gauge, with a SIL 2 rated safety current output connected to a safety PLC.

For communication, the existing tank gauge interface unit in the control room was substituted with a Rosemount 2460 System Hub. The existing inventory management software was replaced with Rosemount TankMaster™, but the original host system was kept untouched. Rosemount TankMaster can communicate with other tanks in the system, that are still equipped with gauges of the previous supplier.

Tank gauging emulation allows for a step-by-step modernization of a tank gauging system, at a time and budget convenient for the customer. This PTT plant includes 19 tanks, equipped with 38 gauges, 20 of which are already in successful operation with the new tank gauging system from Emerson. The remaining gauges will be replaced gradually.

### Resources

#### Emulation Webpage

[Emerson.com/TankGaugingEmulation](https://emerson.com/TankGaugingEmulation)

#### Tank Gauging Website

[Emerson.com/Rosemount-TankGauging](https://emerson.com/Rosemount-TankGauging)

#### Rosemount 5900S Radar Level Gauge

[Emerson.com/Rosemount5900S](https://emerson.com/Rosemount5900S)

#### Rosemount 2410 Tank Hub

[Emerson.com/Rosemount2410](https://emerson.com/Rosemount2410)

#### Rosemount 2460 System Hub

[Emerson.com/Rosemount2460](https://emerson.com/Rosemount2460)

#### System Data Sheet

[Rosemount Tank Gauging System](#)

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***“With emulation it is possible to make a step-by-step upgrade.”***



*The old communication devices in the control room cabinets were replaced with the Rosemount 2460 System Hub which supports the previous field device communication protocol. Simply plug-and-play using the same cabling.*