

Zhangjiang Port Terminal Improves Safety with an Automated Floating Roof Monitoring System

RESULTS

- Reduced risk – No climbing of tanks for routine inspections
- 500 hours yearly time savings with automated monitoring
- Roof movement tracking prevents damage to tank and environment
- Easy installation with wireless tank roof monitoring
- Communication redundancy for measurement data

APPLICATION

Bulk liquid storage in floating roof tanks.

CUSTOMER

Zhangjiang Port Group Co. Ltd (ZPG) is the leading port and tank terminal operator in the area. ZPG has 37 productive berths with annual throughput reaching 116 million tons. The company also operates a tank terminal with 14 bulk liquid storage tanks, all of floating roof type.

CHALLENGE

ZPG used to do weekly manual inspections to check the status of the floating roofs. In addition they did extra inspection rounds in case of bad weather. Inspection took about half an hour per tank. It is estimated that for the 14 tanks, 500 manhours were needed for these inspections every year. Inspections were not only time consuming and inefficient, climbing tanks also involved high safety risks. The company wanted to optimize floating roof monitoring to prevent roof tilt and costly shutdowns, minimize maintenance and ensure tank and personnel safety. In other words safety and reliability were key requirements.

SOLUTION

ZPG chose a wireless solution from Emerson™ for floating roof monitoring.

Three Rosemount™ 3308 Wireless Level Transmitters, based on guided wave radar technology, are installed on each floating roof. Installation was quick and easy since no wiring work was required, thereby reducing the overall project time.

The 3308 transmitter follows the roof movement in real time. It accurately and efficiently provides the tilt of the roof, and if the roof is floating higher or lower than normal. If the floating roof is tilted, it sends an alarm to ensure on-site safety.

Floating roof monitoring data is transmitted over the wireless network via three Emerson Wireless 1420 Gateways to the Rosemount TankMaster Inventory Management Software. The floating roof monitoring network also consists of 27 Rosemount 702 Wireless Discrete Transmitters, used as repeaters.



“Safety is more important than cost. We can now perform real time monitoring of the floating roofs from the control room.”

Vice General Manager, ZPG



Climbing tanks is no longer required to check the status of the floating roof. Supporting features within the Rosemount TankMaster software enables automatic roof monitoring.



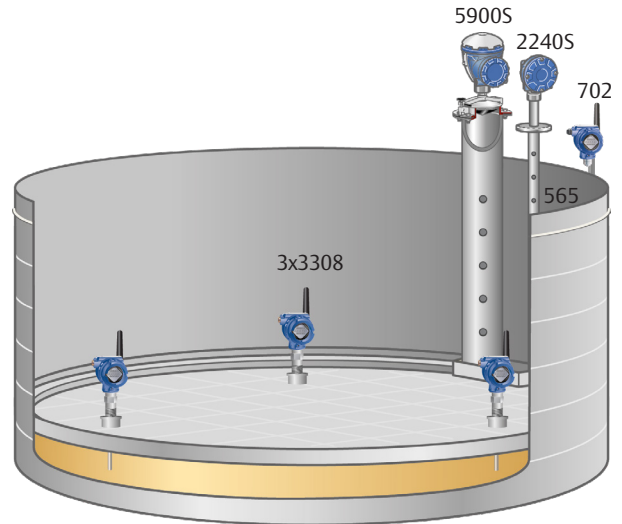
“Safety, reliability and efficiency improved with an automated system”

By using an automated roof monitoring system, personal safety accidents when doing manual inspections are avoided. At the same time, the company drastically reduced maintenance costs.

The floating roof monitoring system works stand-alone, but can be fully integrated with the inventory management system, which is the case at ZPG.

Ten tanks in the inventory measurement system have been updated to include a Rosemount 5900S gauge for level measurement, a Rosemount 2240S temperature transmitter with a 565 multiple spot temperature sensor plus a Rosemount 3051S pressure transmitter for density calculation. These tanks are also equipped with a Rosemount 2410 Tank Hub with wireless option enabling communication redundancy – wired and wireless in combination.

The other four tanks are equipped with the previous generation of level and temperature measurement devices from Emerson, but are under evaluation for an upgrade.



The floating roof monitoring system uses guided wave radar technology and wireless communication.

RESOURCES

[Floating Roof Monitoring Flyer](#)

[Rosemount TankMaster Product Data Sheet](#)

[Rosemount TankMaster Floating Roof Monitoring Manual](#)

[Rosemount 3308 Product Data Sheet](#)

[Rosemount 5900S Product Data Sheet](#)

[Rosemount 2240S Product Data Sheet](#)

[Rosemount 565, 566, 765 Product Data Sheet](#)

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