

Power Plant Achieves Reliable Boiler Drum Level Control with Rosemount™ Guided Wave Radar

RESULTS

- Reduced maintenance with no calibration required
- Increased accuracy with more rapid drum level readings
- Elimination of unwarranted trips due to cold ambient conditions

APPLICATION

Boiler drum level control at a combined cycle power plant.

CUSTOMER

NA natural gas combined cycle gas plant located in USA with a capacity of over 900 MW

CHALLENGE

During the winter months, sub-freezing temperatures are common in this region which creates challenges for the company's drum level measurement instrumentation.

The primary level measurement on the boiler drums were differential pressure transmitters with impulse tubing (wet legs). During winter months frozen wet legs caused errors in the indicated drum levels resulting in unit trips. To alleviate the problem, the impulse tubes were insulated and heat traced but the impulse tubes continued to freeze.

SOLUTION

As a result, the gas site systems engineer decided to investigate alternative technologies to improve the reliability of the boiler drum level instrumentation. With support from Emerson™ experts, they installed Rosemount 5300 Guided Wave Radar with Dynamic Vapor Compensation (DVC) along with a Rosemount 9901 bypass chamber.

With process design conditions exceeding 2300 psi and 650° F, the Rosemount 5300 with DVC provided fully compensated level measurements, independent of pressure and temperature, resulting in accurate and reliable level readings during all start-up and shut-down conditions, regardless of the weather.



“Since converting to the Rosemount 5300 with Dynamic Vapor Compensation, unit reliability has significantly increased.”

Manager of Gas and Turbine Engineering

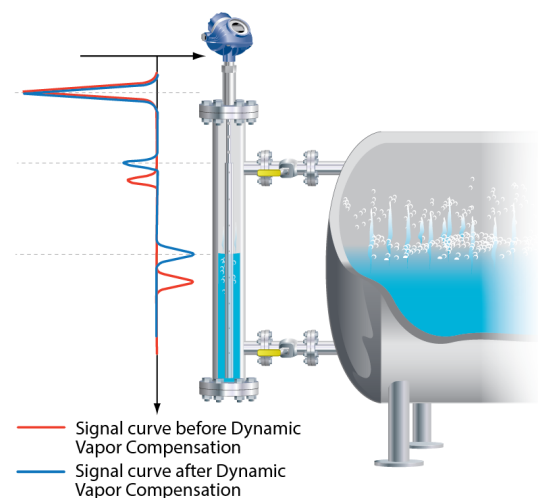


Illustration showing how Dynamic Vapor Compensation works

INDUSTRY

The plant used a two out of three voting system with three redundant radar installations. Since installation, the Rosemount 5300 with Dynamic Vapor Compensation has proved to be very reliable. The radar levels cannot deviate from each other by more than 2.5" (6.35cm) without causing the boiler to trip. Since installation, they have all tracked reliably and within the manufacturer's specification.

Emerson technicians performed on-site startup of the radars and provided formal training for the site operators to ensure confidence in the new product.

"With the proven reliability of the Rosemount 5300 with DVC, we are working to implement them as a best practice for the combined cycle fleet"

Manager of Gas and Turbine Engineering

RESOURCES






Rosemount 5300 Guided Wave Radar

EmersonProcess.com/Rosemount/Guided-Wave-Radar/5300




Emerson Process Management Power Industry

EmersonProcess.com/Industries/Power

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