ABB ME A SUREMENT & ANALYTICS | APPLICATION NOTE

Guided Wave Radar enhances efficiency

Feedwater Heaters Guided wave radar working in feedwater heater applications

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01 Intermountain Power Plant

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Introduction

Feedwater heaters are the heart of power plant, efficiency and are a crucial part of the power generation process. They are responsible for heating the water that is used to generate steam, which increases the efficiency of the power plant. Level measurement is a crucial aspect of feedwater heater operation in power plants, since affects plant efficiency. Accurate and reliable level measurement is required to ensure that the heaters operate at optimal levels, which, in turn, maximizes the efficiency of the plant.

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Challenge

As a best practice, most commercial power plants will run a minimum of two and sometimes three level measurements on the feedwater heater.
The Distributed Control System (DCS) will then use two out of three voting to determine the correct level and throttle the valve actuators outputting to the boiler drum. However, in many cases the level transmitters that are outputting do not match each other causing confusion for the control system and manual offsets for the operations team.

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02 Triple redundant level control

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03 Example uneven measurement lengths and distances from feedwater heater

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04 LWT310 on cutaway displacer bridle

Rationalization

If external piping for bridle construction has measurements taking place from various levels or different distances from the heater, the temperature drop has a significant impact on the saturated steam's properties. It's always recommended to have measurements take place at equal distances and measuring lengths.

The ABB Solution

Various technologies can be used to measure the water level in feedwater heaters, such as displacer, guided wave **radar**, **differential pressure**, and **magnetostrictive** level sensors. ABB recommends using multiple transmitters as a best practice to ensure some continue working even if one needs service or stops working while the plant is running. The **LWT310** offers an accuracy of +/-2mm far surpassing existing displacer technology. It's minimal dead zone allows for retrofitting into displacer bridles. However, the other critical component to this type of system working properly is for the measurements to happen on an even playing field.

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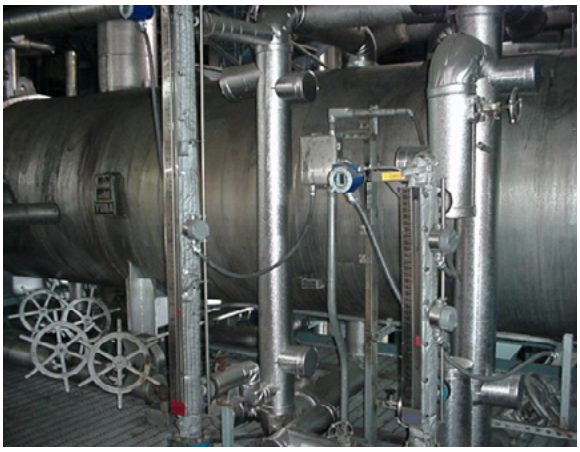

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AN/GWR/ENHANCES_EFFICIENCY-EN Rev. A 09.2023