Improved Safety and Reliability with Reduced Maintenance Costs Using Mobrey Hydratect

RESULTS

- Significantly improved reliability
- Decreased maintenance workload and costs
- Reduced safety risk to personnel
- Spare parts stock requirement decreased

Hydratect gives a reliable visual indication in this safety critical application.

APPLICATION

Drain pot level alarms on supercritical steam lines.

CUSTOMER

A 600kW coal fired power plant in Guangdong, China

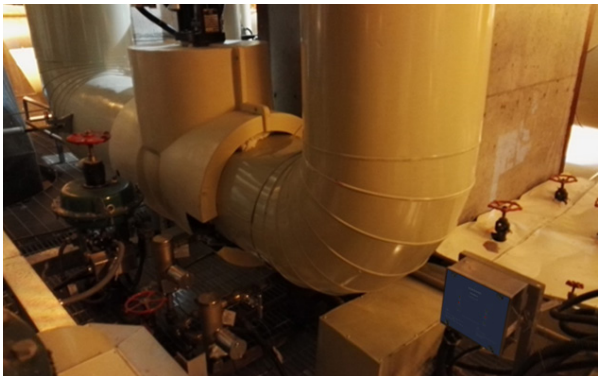
CHALLENGE

Any liquid entering a steam turbine will cause damage which could be both costly, and dangerous to personnel due to the extreme temperatures and pressures involved. It is therefore common to use drain pots (also known as condensate pots or steam traps) on supercritical steam lines to remove any condensate and ensure that it does not enter the turbine. These drain pots use level sensors to detect high levels which then open valves to discharge the condensate.

A power plant in Guangdong, China had been using float switches for the level detection on their drain pots but found that these gave unstable performance under the demanding pressures and temperatures of up to 2900 psi and 932 °F (200 bar and 500 °C). Components needed to be replaced frequently, and there was no self-diagnostic function or status output to indicate whether the instrument was working correctly. The high failure rate increased the maintenance requirement, which subsequently increased both costs and risks to personnel safety.

SOLUTION

The plant replaced all their float switches on the supercritical steam lines with Hydratect 2462 Water and Steam Detection Systems. The Hydratect 2462 is suitable for steam/water detection to maximum process pressures and temperatures of 4350 psi and 1040 °F (300 bar and 560 °C). The electronic controller gives a visual indication and relay output to show steam, water or a fault condition. It has a patented design with extensive self-monitoring to ensure any component failure will result in a fail-safe condition.



Hydratect installed at the drain pot on the main steam line

Electrodes on vertical pipe sections as Hi and Hi-Hi alarms

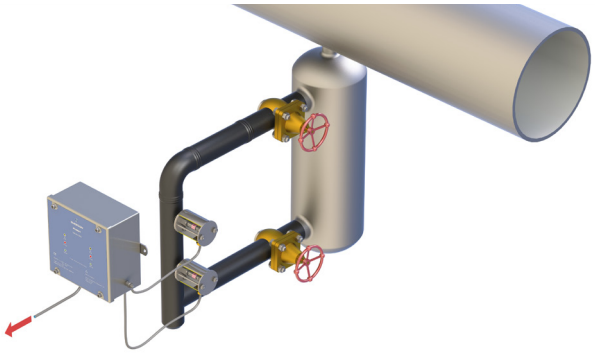
delta-mobrey

The plant installed one Hydratect controller, each with two electrodes on each drain pot as Hi and Hi-Hi level alarms. These were configured so that both electrodes would sense water before tripping the alarm and triggering the sequence to discharge the condensate.

The Hydratect provides continual indication to show that the system is working correctly. With the previous float switches, there was no way of knowing if they were working correctly, or had failed. High condensate levels are detected and condensate is safely drained away before causing any damage.

Approximately 30 Hydratect systems, giving 60 detection points, were installed throughout the plant.

The Hydratect systems are extremely reliable and greatly reduce any downtime due to failure. Maintenance workload is reduced saving time, reducing costs and the risk to personnel. The customer no longer needed to keep a stock of spare parts to replace faulty components.



A representation of the installation

Mobrey Hydratect 2462 Water and Steam Detection System

Linkedin.com/company/Delta-Mobrey
Twitter.com/Delta-Mobrey
Facebook.com/Delta-Mobrey

Delta Mobrey
Riverside Business Park, Dogflud Way,
Farnham, GU9 7SS, UK

+44(0) 1252 729 140
+44(0) 1252 729 168
sales@delta-mobrey.com

delta-mobrey