

Application Note

Company Profile Power Generation Fossil Plant

Problem

Cooling water with a flow rate of 15 to 100 GPM in a 1½" vertical pipe was being monitored using glass tube rotameters. This arrangement did not allow the flow rate to be monitored remotely and only a low rate alarm was available. This was accomplished using a reed switch that provided low flow indication at 20 GPM via a 2-wire connection to the DCS.

The process being monitored is lake water and it contains various particulates. Ambient temperature in the area gets as high as 130°F. Over time, a build up on the inside of the rotameters had made them difficult to read. Eventually this contamination caused one of the rotameters to rupture while the operator was taking a visual reading. Fortunately, there were no injuries from this potentially dangerous situation.

Solution

MagneW Two-wire PLUS. The MagneW Two-wire PLUS provided the customer with a flow meter that gives a 4-20mA output using the existing wires from the reed switch low flow alarm of the rotamter. The power supply of the DCS was used to power the MagneW. Alarm points were then programmed in the DCS. The customer also had the option of using the contact closure alarm on the MagneW.

The customer still required local indication of the flow rate. The standard LCD display was oriented for vertical piping and installed.



The 0.5% of rate accuracy provided by the MagneW Two-wire PLUS was a significant improvement over the rotameter. The ambient temperature rating of 140°F was more than adequate for the application

Additional Benefits of the MagneW Two-wire PLUS:

- The non-obtrusive design is not adversely affected by the dirty lake water.
- The pressure drop is lower than with the rotameters.
- Cooling water flow can be totalized and the rate continuously monitored.

In total, eight rotameters will be replaced in this facility. Safety is the driving factor.

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