Keco Engineered Controls Designs Rosemount Tuned Deaerator Water Level System for Major Northeastern US Power Plant

Process Control Instrumentation Experts Design and Supply a Deaerator Water Level Measurement System to eliminate Level Measurement Failures

Rosemount 3051L with an 1199 Remote Seal

LAKEWOOD, NEW JERSEY, UNITED STATES, July 10, 2023 / EINPresswire.com/ -- A major Northeastern US power plant needed to eliminate level measurement failures in two boiler water deaerators that are critical to the operation of the plant. The existing level measurement system used a differential pressure transmitter with a ½" stainless steel impulse line piped from the bottom of the deaerator to the transmitter high pressure port to measure water level. A separate ½" stainless steel impulse line was piped from the top of the deaerator to the transmitter low pressure port to measure steam pressure to compensate for that pressure on the top of the closed tank.

The existing system had become a very high maintenance item because the 1/2" impulse lines would plug as sediment in the deaerators would build up in the lines and restrict the pressure. causing a water level alarm. This required a costly shutdown as the deaerator was removed from service to allow the impulse line(s) to be cleared. This also created a potential safety issue because the low pressure line was filled with high pressure hot steam.

Keco Engineered Controls evaluated the system and decided to eliminate the impulse lines by designing a Rosemount Tuned-System Assembly. A Rosemount 3051L direct mount level transmitter was installed on a nozzle with a 2" flange on the bottom of the deaerator to measure the water pressure, eliminating that impulse line.

The design also included a Rosemount 1199 direct mount remote pressure seal mounted to a nozzle with a 2" flange on the top of the deaerator to measure the steam pressure, eliminating that impulse line. The steam pressure measurement is sent to the transmitter using a capillary line connecting the remote seal to the transmitter.

The Tuned-System eliminated the impulse line failures because the 2" nozzles that the direct mount transmitter and seal are mounted on are large enough that they do not become restricted. In addition the performance of the system was improved by 30%, time response

improved by 80%, and a hot steam safety issue removed by removing the long impulse lines.

The new design is also expected to provide a more reliable and longer lasting system because of the robust diaphragm design in the seals and the transmitter. A recessed diaphragm reduces the potential for handling damage and backup convolutions in the diaphragm minimize seal oil volume behind the diaphragm, insuring measurement reliability. The welded seal design with no threaded connections is 100% helium leak tested to insure the system is air-free and leak tight to provide long term stability.

To insure the Tuned-System produces the results expected, Keco uses Emerson design software to validate the integrity of the level system. The software also produces detailed documentation for factory production to insure the systems are built exactly as designed. The same documentation is provided to end users so they understand the system and can confidently proceed with it.

About KECO Engineered Controls:

Providing state of the art control instrumentation, Keco has become a trusted partner to many companies worldwide. Carefully selected products are provided to meet customers flow, level, pressure, steam, temperature, and combustion control requirements. Keco provides control Instrumentation from manufacturers like Rosemount Measurement, Rosemount Analytical Liquid and Gas, Micro Motion, Foxboro, ASCO, Ashcroft, Precision Digital, SOR, and Hach which helps insure the solutions provided use the latest technology for efficient, reliable, and safe operations.

Joe Mitchell
Keco Engineered Controls
+1 732-901-5900
sales@kecocontrols.com
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