SmartWireless Network and AMS Suite Combine to Optimize Control Valve Maintenance and Operation

RESULTS

- Saved thousands of dollars through advanced valve diagnostics
- Significant reduction in valve maintenance costs
- Low cost installation of wireless adapters on existing valves

APPLICATION

Six control valves regulate water levels in steam generating boilers.

CUSTOMER

Edegel is the largest privately owned power generation company in Peru with a total installed capacity of 1,280 MW. The Ventanilla Thermal Plant generates steam from natural gas to provide 500 MW of power for the city of Lima.

CHALLENGE

Plant management was directed to reduce operating and maintenance costs to improve profitability. In order to optimize operation of two three-stage boilers producing 295.42 lbs of steam per hour, plant personnel needed better information regarding the control valves used to regulate water levels. However, there was no established means of obtaining data from the valves and communicating it to the control room or maintenance shop. Previously, such information could be obtained only by sending a technician to attach a laptop or handheld communicator directly to the device – in this case, a difficult and dangerous task.

"Because these valves are now maintained for a very high performance level, they respond quickly and accurately to signals from the control system in order to precisely maintain water levels in the boilers."

Cesar Ricardo Espinoza,
Instrumentation & Control Technician,
EDEGEL

For more information:
www.assetweb.com

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SOLUTION

To access field-generated information, an Emerson SmartWireless mesh network was established by installing THUM Adapters on each of six FIELDVUE® digital valve controllers mounted on Fisher level control valves. The THUM Adapter is a device that can be retrofit on any existing two- or four-wire HART device, making possible wireless transmission of diagnostic information from that device.

Each wireless THUM Adapter not only transmits data continuously but also acts as a router for other wireless devices on the mesh network, passing data along until it reaches Emerson's 1420 Gateway. If an obstruction blocks a transmission, it is simply re-routed until a path to the gateway is found. Because SmartWireless networks are based on the *Wireless*HART™ standard, THUM Adapters are configured and commissioned in the same way as wired HART devices.

Wireless provides an easy, inexpensive way to gain access to advanced valve diagnostics generated by smart instruments in the power plant. Data received by the gateway is passed directly to AMS Suite: Intelligent Device Manager predictive maintenance software where it is processed and made available for viewing on monitors in the control room and maintenance shop. In this way, plant personnel are able to remotely monitor the performance of control valves that are critical to the operation of the steam boilers. They can even interact with the field devices, checking current valve operating curves against a valve's original signature and evaluating drive signals received from the control system. In this way, evolving problems can be identified quickly, enabling maintenance supervisors to make repair plans well in advance to avoid a disruption of steam production.

Wireless transmissions enable continuous monitoring of the performance of key control valves.

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