

Emerson's ROC800 and Injection Control Program Provides Cost-Effective Solution for Expansion of Water Injection Manifold

RESULTS

- Total cost of installation for the ROC800 implementation was nearly \$10K below estimated PLC cost
- Manifold expansion was greatly simplified, providing all customer requirements without custom programming



APPLICATION

Onshore Oil Production where operator needed to expand a water injection manifold from 8 to 15 well streams

CUSTOMER

An independent Oil Company in Southern California

CHALLENGE

With new injection wells completed in the field, the customer needed to expand functionality at injection measurement/control manifolds. The customer was also having problems with control valves not always moving to commanded position and they required confirmation of valve position.

The instrumentation for the new well streams, along with the addition of valve position feedback signals, more than doubled the I/O count. The existing PLC at the manifold could not accommodate the expanded I/O.

If the operator addressed the challenge using their standard approach, the project would require a re-write of the PLC program on a new hardware platform. The cost and project timeline expansion were their major concern.

“Using the Emerson ROC solution was easier, quicker, and cheaper than using a PLC.”

SOLUTION

Since it has already been determined that hardware replacement was necessary, Emerson proposed a ROC827 with the Injection Controller program. It provided all the features required by the customer — eliminating the need for custom programming. The ROC800's integral wireless gateway permitted wireless wellhead pressure instruments to be easily incorporated into the control strategy.

Using the Emerson ROC800 RTU and the Injection Controller program, the manifold expansion was greatly simplified. For the expansion from 8 to 15 streams, a ROC800 with 2 expansion chassis was used. As the number of streams grew to 25, an additional expansion chassis was added in the original panel. The original turbine meters were removed and all streams were metered with Rosemount™ 8800 vortex shedding meters. The vortex meters were interfaced to the ROC800 using HART protocol in a multi-drop configuration. All of the new streams (17 streams in the final configuration) were controlled by Fisher™ D4 valves, Fisher pneumatic actuators, and Fisher DVC 6200 positioners. In an effort to maintain consistency with the older analog positioners used on the original 8 streams, the operator chose to employ analog signals for valve positioning commands and position verification. Wellhead pressures were sensed using Rosemount 3051 S wireless transmitters and interfaced to the ROC800 using the IEC62591 Interface module and Field Link device.

The project timeline was compressed and the cost of PLC programming was eliminated. The operator believed that the total cost of installation (hardware plus commissioning labor) for the ROC800 implementation was \$9,262 less than they expected to spend with a PLC.

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