

Fisher® Valves Ship Quick, Avoid Downtime, and Save a Gulf Platform 3,000 Barrels per Day

RESULTS

- Achieved 100% availability from two critical valves over nine months and counting
- Restarted a waterflood unit 15 weeks earlier than expected
- Saved \$300,000 USD per day (when oil was \$100/barrel)
- Reduced plugging and cavitation for valves in high-pressure, seawater service

APPLICATION

Pressure control and dumping overboard valves in waterflood system

CUSTOMER

An oil platform in the Gulf of Mexico

CHALLENGE

At its peak production, a deepwater platform in the Gulf of Mexico has the capacity for 150,000 barrels of oil per day. But, early in 2014, two critical, non-Fisher valves in the waterflood unit were causing problems. While trying to manage an extreme pressure drop, the valves would plug and then cavitate, risking damage to the valves as well as to downstream piping. When it runs well, the waterflood system enhances production by 100 barrels per day. With the competitor's valves down 15 to 20% of the time, production losses were painful.

The producer was eager to avoid more downtime. But, this application subjects control valves to a punishing pressure drop—up to 10,000 psi—as well as potentially corrosive seawater. They needed new valves that would hold up under these conditions, and they needed them quick. The complexity of the replacement valves, not to mention the custom materials required, would extend manufacturing lead times to 35 or 40 weeks. Emerson's local business partner, John H. Carter Company, pulled a team of Fisher product experts together to address both the application and delivery challenges of this project.



“From sales to service and installation, Emerson met this engineering and delivery challenge. A pair of Fisher control valves have enabled us to minimize downtime in a critical waterflood system and to maximize production from a critical platform.”

Deepwater Facilities Engineering Manager
Oil platform in the Gulf of Mexico



SOLUTION

The Emerson project team included service technicians, severe service engineers, and fast delivery experts. Emerson personnel worked with John H. Carter engineers to specify replacement, fail-open Fisher control valves with a Cavitrol™ IV, 7-stage trim package to address the challenging pressure drop. FIELDVUE™ DVC6200 digital valve controllers provide on-line diagnostics and HART® communication capabilities.

The service team stepped up to deliver the assemblies in nearly half of the standard lead time. Custom materials included Duplex F51 bodies/bonnets and Super Duplex S32760/Inconel trim.

The service facility is now able to focus its resources on limited production runs and build product quickly. The team assembled the valves and performed all the required tests, including hydro (up to 15,000 psig) and Class V seat leak (10,000 psid). One of the valves shipped in 19 weeks and the second one in 21 weeks. The third assembly, intended as a spare, shipped one month ahead of the projected schedule.

Nine months after installation, these Fisher valves had provided 100% availability in a tough application. The valves protect the downstream piping from cavitation damage, improve pressure regulation to the wells, and provide more consistent pump control.

RESOURCES



Technology Summary: Cavitrol IV Trim

<http://www.documentation.emersonprocess.com/groups/public/documents/brochures/d351182x012.pdf>



Brochure: FIELDVUE DVC6200 Instruments

<http://www.documentation.emersonprocess.com/groups/public/documents/brochures/d351908x012.pdf>



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The original valves in the waterflood system could not handle the flow rates. Some piping changes were required to accommodate the replacement Fisher valves. Then, Emerson personnel worked with material suppliers and machinists at the Atlanta service center to expedite the order.

