

TECH TIDBITS, vol. 21

Slow Function Response Due to Faulty Regulator

The crew of a fifth-generation deepwater rig recently stump and function tested the BOP stack successfully before deploying and latching it to the wellhead. A scheduled function test later revealed slower than normal function response times. Since the response times were within the maximum requirements, work was continued and completed on the well prior to retrieving the BOP stack. Once the stack was on the surface, the subsea staff put in a number of man hours troubleshooting. The investigation narrowed the slow response to a 1” manual regulator valve that was inhibiting flow through the manifold circuit.

Description of Issue

When the subsea staff function tested the BOP on the wellhead, the function response times for the yellow control pod were slower than normal. The blue pod still functioned correctly. Inlet pressure to the manual regulator valve was 5,000 psi. Regulated pressure at the outlet-was correct at 3,000 psi, manually set on the surface.

The subsea staff spent significant time and effort troubleshooting the slower than normal function response times in conjunction with the OEM, an industry leader in control systems. The 1” manual regulating valve was replaced several times with new OEM valves. Some of the new valves began with normal response times, but as the number of functions increased, so did the function response times. Finally, a new 1” manual regulator valve was found that provided normal response times consistently.

This situation has also been reported on other rigs with the same control system.

Solutions

The OEM has been informed, but has not yet responded with a clear solution or recommendations. Since no definite cause has been established, it is recommended that you ensure the availability of spares for your particular system. Before deploying the BOP stack, WEST also recommends that you operate multiple functions several times and verify the function response times.

For more information or technical questions, please contact WEST Engineering, west@westengineer.com, or call 281-375-5515, or visit our website at www.westengineer.com.