



Engineering
GREAT Solutions

Cavitation issues resolved at offshore facility using DRAG® technology

The challenge

In 2013, an oil production facility with a long-standing relationship with IMI CCI, was experiencing significant cavitation issues in their pump discharge level control valves. After properly diagnosing the root cause, IMI CCI resolved the cavitation problem by supplying multi-stage pressure letdown 900D DRAG® valves.

Five years later, this same oil production facility was facing a new problem with their pump discharge level control valves. Following a well rejuvenation program, the sand content in the oil stream increased dramatically and the customer discovered that the flow passages in the 900D were clogging with sand and that accelerated erosion was occurring on the disk stack and balance cylinder.

The solution

Given the successful track record of the DRAG® technology in mitigating their previous cavitation issues, as well as IMI CCI's reputation for solving challenging control valve problems, the customer requested IMI CCI to work with their engineering consultants to resolve the new issues.

IMI CCI Valve Doctors® met with the customer's team to analyse the available flow data. Starting with the proven foundation of DRAG®, the Valve Doctors® proposed upgrading the level control valves to custom 100D designs utilising a tungsten carbide (WC) trim and large flow passages. WC provides excellent wear resistance against sand and particulate erosion.

Another challenge posed by the increased sand content was erosion in the valve pressure boundary. To maintain face-to-face dimensions and pipe configurations, the

level control valves needed to retain their globe configuration. Unfortunately, in this configuration, continued exposure to increased sand content would result in erosive wear of the valve wall below the seat bore. To address this additional challenge, IMI CCI provided a seat basket to minimise direct sand contact with the body below the seat bore.

Based on the ability of IMI CCI's proposed solution to mitigate the sand erosion concerns in their level control valves, the customer decided to apply another IMI CCI solution, which included the same erosion mitigating features (the 100D choke), to upgrade their pump recycle valves, as those too were expected to see the same level of severity of service.

IMI CCI's ability to adapt their solutions to each new challenge, from cavitation to sand erosion, ensures our customers long term savings in both operating and maintenance.

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