

TEAM 24-hour Job Saves Shell £15 Million



Overview

Two 36" pig launcher valve bonnet o-rings required strengthening within a short 24-hour period to prevent multiple shutdowns. TEAM delivered a solution leak sealing and repair solution that saved Shell £15 million.

Project: Valve Bonnet O-Ring Strengthening in Quick 24-Hour Turnaround

Location: Brent Field, North Sea

TEAM Service: On-Line Leak Sealing and Repair

Need and Challenge: Two 36" pig launcher valve bonnet o-rings required strengthening on Shell Expro's Brent Bravo offshore platform. Using conventional techniques (changing the valve out) three platforms in the field (Bravo, Charlie and Delta) would have had to be shut down for approximately 10 days at considerable cost.

Solution and Outcome

TEAM was called in to strengthen the o-rings, but had to complete the work within 24 hours. The quick timeline was necessary in order for Shell to maintain contractual gas delivery from the field. The work would require the repair to take place in extremely tight and hazardous conditions.

Extensive workshop trials were carried out, involving a 40' refrigerated truck and a 48-hour chill down, for accurate simulation of the real temperatures faced on the Brent platform. This enabled a full-scale timed trial to take place, ensuring that the required results could be achieved

Knowing that the depressurising and pressurising phases would take up the majority of the 24-hour period, the team developed a special fast-curing sealant. It dramatically reduced the curing time from the usual 12 to 16 hours, to just four hours. A purpose-designed jig piece and clamping arrangement were also designed and manufactured to assist with the challenges TEAM would face once ready to perform work on the platform.

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The initial phase involved drilling down some 10" through the valve bonnet. The goal was to hit the o-ring cavity location precisely, but fall short of the final breakthrough by a pre-set distance. The work was performed in just four hours (less time than anticipated) using TEAM's specially manufactured equipment.

The crucial second phase involved breaking through the remaining metal into the o-ring cavity, injecting the special sealant, and achieving the shortened cure.

The work was completed successfully and within the 24-hour time limit. As a result, all three platforms remained operational, saving Shell £15 million.

This work may have been performed by a company subsequently acquired by TEAM.