Due to changes in seabed conditions, the platform jacket had moved, producing stress on the gas export riser attached to the platform jacket. The stress was most acute at the contact point between the bracings – or riser clamps – that anchor the riser to the platform structure.

Concerned that the amount of stress developing at the contact point could eventually damage the riser, the operator decided that the best solution was to cut out and remove a section of the jacket bracing. Removal of the brace would not affect the technical integrity of the structure.

To ensure that the bracing could be safely removed from the pipeline, the operator chose SmartPlug® isolation. The SmartPlug isolation method, developed by T.D. Williamson (TDW), involved isolating the affected section of the subsea line by inserting and setting the remotely-operated isolation tool approximately 100 m from the platform. By doing so, only a short section of the pipeline had to be depressurised and isolated while the bracing was removed.

The alternative to this approach would have been to depressurise the entire pipeline, which would have been time-consuming and costly for the operator. Further complicating the situation was the fact that the line is tied in to another major pipeline that extends to a central riser complex. This line would have to have been bled down as well, causing major disruption to overall production from the field.

Before the pipeline could be isolated, however, it became apparent that one of the topside motor-operated valves (MOVs) closest to the pig launcher would not open properly, so it would have to be replaced so that the SmartPlug tool could reach the point of isolation. To rectify this, TDW performed a hot tap and Stopple plug isolation on the riser above the shutdown valve, thereby providing double-block isolation so that the operator could safely replace the malfunctioning MOV.

Once the MOV was replaced, TDW launched the SmartPlug tool to the set location in order to isolate the line connected to the jacket bracing, which required that a section be removed. The line was isolated for five days, allowing a diving contractor to safely remove the bracing without disrupting production. The SmartPlug tool was then unset and retrieved back to the launcher.

unexpected discovery demands full range of pipeline services

As a result of the unforeseen replacement of the MOV, the immediate challenges faced by the operator were compounded. The operator and TDW worked together to make certain that, in spite of the MOV replacement, the bracing would be safely removed within the original timeframe. First, TDW expedited the manufacturing of a special custom fitting for the hot tap and Stopple plugging operation at its US manufacturing facility. It then managed the entire operation, working closely with its teams in Norway, Belgium and Singapore, and collaborated with its network of trusted specialists to provide welding and nitrogen- and water-pumping services. All of this was accomplished in just four months.

“The operator was faced with a unique and pressing challenge: to relieve the increasing stress on the riser by removing the subsea bracing, without disrupting production,” explains TDW Business Development Manager – Asia Pacific Rolf Gunnar Lie.

“The fact that a defective MOV prevented us from immediately isolating this line so that the bracing could be safely removed could have been a real setback, delaying this critical work for months.

“However, due to TDW’s extensive experience in hot tap and Stopple plugging services, we were able to help solve this problem and move forward rapidly,” he added.
TDW made it possible for the operator to extract the bracing, which alleviated the growing pressure on the riser, ensuring that it continues to operate safely.

TDW’s relationship with the operator dates back twelve years, supplying pipeline pressure-isolation services to facilitate safe maintenance activities on export lines and pipeline tie-ins. This recent operation was executed as part of a framework agreement between the two companies, which was extended in 2012.

Construction works trigger increased demand for isolation services

With operators keen to protect live pipelines and maintain production while construction or repair works take place, TDW reports increased demand for its specialist pipeline isolation services, particularly in the Asia Pacific region. By isolating a designated section of a pipeline with its SmartPlug technology, operators avoid the trouble and expense of having to completely depressurise the entire line. In addition, the line can remain isolated for extended periods – months, if necessary – while work is carried out, or if work is delayed due to inclement weather or other extenuating circumstances.

TDW is a full member of the Pigging Products & Services Association.

For more information on TDW’s products and services visit www.tdwilliamson.com

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