



Isolation plug and ESDV assurance

“Jee delivered a professional support package to a very complex repair project. Their support helped deliver a successful project through utilisation of their knowledge and skills.”

Paul Godzman, BP Exploration Operating Company



TDW SmartPlug™

The scope

BP asked us for support with the assurance of an emergency shutdown valve (ESDV) overhaul.

The project proposed to pig a remote isolation tool downstream of the ESDV, where it would be set with the aim of providing a safe isolation barrier to allow repair or replacement. BP operate the pipeline but a third party operates the platform where the ESDV is located, who were responsible for the execution of the work. BP took an assurance role in the project with our support as an independent advisor.

We have been providing BP with global operations and project support for over ten years. As a result of this long-term relationship, we have an in-depth understanding of BP's specific technical requirements, enabling us to provide the most innovative and relevant solutions possible.

The solution

Supported by decades of knowledge of subsea projects, we provided BP with technical assurance of the remote isolation tool and new ESDV. We:

- ✦ Assured the isolation tool and ESDV against BP and our standards
- ✦ Acted on behalf of BP and liaised with the third party operator to discuss and close out assurance queries
- ✦ Reviewed all project documentation and recorded in verification notes
- ✦ Assisted in the development of bespoke testing requirements for the isolation tool and provide technical support
- ✦ Witnessed ESDV factory acceptance testing (FAT)
- ✦ Produced a report summarising the assurance work completed
- ✦ Supported BP with the management of change process
- ✦ Chaired BP risk assessments and progress meetings, and maintained an action tracker.

Remote isolation tool

When the system set-up does not allow for the required level of isolation, isolation plugs can be deployed into the pipeline, rather than the potentially costly option of depressurising the system. However, using isolation plugs comes with a level of risk that needs to be minimised. We were able to offer support to BP focussing on minimising risk by thoroughly reviewing the isolation tool design, operation and impact on the pipeline.

We reviewed in excess of 150 documents and (using a verification note process) was able to track all comments to closure, ensuring all assurance issues were addressed. The isolation tool review was documented in a bespoke checklist that reviewed all aspects of the deployment, such as design, operation, piggability, pipeline stress analysis and operating procedures.

We also supported BP with the development of a testing methodology to prove that the isolation plug could be set in the proposed location without affecting the material properties of the riser.



Replacement ESDV

A replacement ESDV was manufactured as an option for the overhaul. Similar to the isolation tool, all documentation was reviewed and a checksheet was developed to review the proposed design and testing against BP and our standards and best practice.

The assurance focussed on areas such as valve and actuator design, materials, low temperature toughness and corrosion protection, manufacture, non-destructive examination and repair, and factory acceptance testing. We were able to offer their expertise in valve design and also oversaw factory acceptance testing on BP's behalf as an independent third party.

The benefits

Our technical support and assurance meant BP was confident the remote isolation tool project would be successfully deployed and was in line with their standards, change management process and industry best practice.

Our collaborative approach towards managing the third party operator, liaising with BP and the centralisation and review of all the assurance documentation ensured all issues were resolved efficiently, minimising risk and ensuring a successful operation.