

CASE STUDY

Shell U.K. Exploration and Production : Pierce

Technical Consultancy to FEED Study; Design Verification of Flexible Riser System



Shell UK Exploration and Production required new water injection facilities to enhance production at the Pierce Field, located in the North Sea. The Pierce field was brought on-line in 1998 via two manifolds on the seabed. The new water injection system will provide treated water to the existing drill sites via a new 10" water injection riser from the FPSO Haewene Brim to a riser base. A flowline then feeds each drillsite.

MCS provided expertise to Shell in a number of areas, including FEED study to determine critical areas related to the riser design and also verification of the final flexible riser design performed by Technip.

SOLUTION

- Perform a feasibility assessment of possible flexible riser configurations.
- Perform a FEED study to determine realistic riser hang-off loads for design of the hang-off arrangement to the APL submerged turret mounted buoy. This would allow long-lead items to be designed and procured for the project prior to detailed design.
- Provide independent flexible pipe expertise during the EPIC bid review.
- Perform independent verification concurrent with the design of the Technip flexible riser. Verification areas included pipe cross-section analysis, riser extreme response and riser service life analysis.
- Ongoing assistance to Shell with various flexible pipe issues throughout the duration of the project.

RESULTS

- Using our extensive flexible pipe knowledge, we provided ongoing expertise to Shell on various issues related to the design of the riser and flowlines at all stages of the project.
- Our approach to the FEED study allowed early identification of critical areas of the design that were subsequently highlighted to the EPIC contractor for detailed design.
- Through close involvement with the EPIC contractor, we performed a detailed independent verification in parallel with the Technip detailed design phase. This ensured any critical areas were fully examined prior to manufacture and installation.
- Our involvement from the FEED study through to design verification provided Shell with the benefit of flexible pipe know-how from a worldwide independent expert in flexible pipe technology.

Shell - Pierce

If you would like more details, please contact us at Aberdeen@mcs.com

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