



## Shell Pierce: Redevelopment Project

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 Kenny 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.

### Scope of Delivery

- 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.

### Benefits

- 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.