

Carrack East Detailed Design

GAS

Shell U.K. Limited

Shell U.K. Limited (Shell) is planning the development of the remaining small gas opportunities within its Southern North Sea portfolio, spread over both the UK and Dutch sectors. The development of these gas prospects is commonly known as the SWEEP Project. Low cost subsea system solutions are essential in order to make the development of these gas pockets economically viable.

The concept for the SWEEP subsurface development is that a dedicated low-cost jack up drill rig will drill a number of SWEEP wells every year starting Q4 2010/Q1 2011. Most of the wells will be of exploratory nature with an anticipated 60-80% success ratio. The base case for SWEEP field development is a subsea well tied back to Shell's extensive host infrastructure in the region. The aim of the SWEEP project is to design and develop a standardised low cost solution that can be applied across the prospects. Standardisation and batching of several installations are seen as two approaches in an effort to achieve cost reduction. It is envisaged that each successful SWEEP well will be tied back to a host in a summer installation campaign, starting in 2011. In subsequent years it is intended that SWEEP developments would be executed in batches of 4-5 wells per year.

The initial host asset has been selected as the Carrack QA platform in the UK sector. The tie-back well selected is Carrack East.

Andrew Palmer & Associates scope of work:

- Wall thickness design for pipeline, tie-in spools and riser
- Pipeline & umbilical route selection
- On-bottom stability analysis for pipeline & umbilical
- Preliminary expansion and upheaval buckling analysis
- Preliminary design of crossings
- Outline installation and commissioning methodology
- Develop Material Take Offs and, where necessary, material specifications for all pipeline system materials
- Tie-in design
- Preliminary riser design
- Consider and evaluate alternative methods for providing permanent protection
- Assess alternatives and perform preliminary design of wellhead protection structure

Location: Southern North Sea, UK & Netherlands

Block: Multiple Southern North Sea Blocks

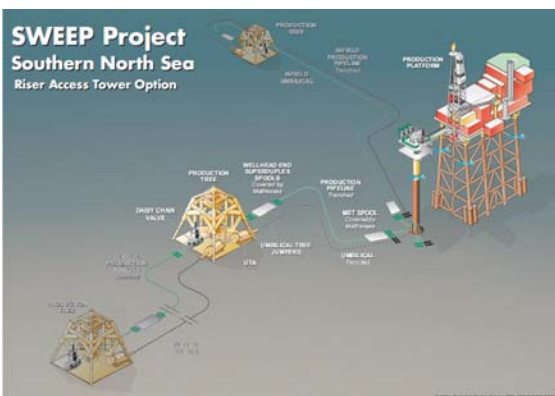
Water depth: 30m (typical)

Duration: 18 weeks

Contract: Reimbursable

Manhours:	<500	500-5000	5000-10,000	>10,000
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Penspen Value:	<\$100k	\$100k-500k	\$500k-1,000k	>\$1,000k
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