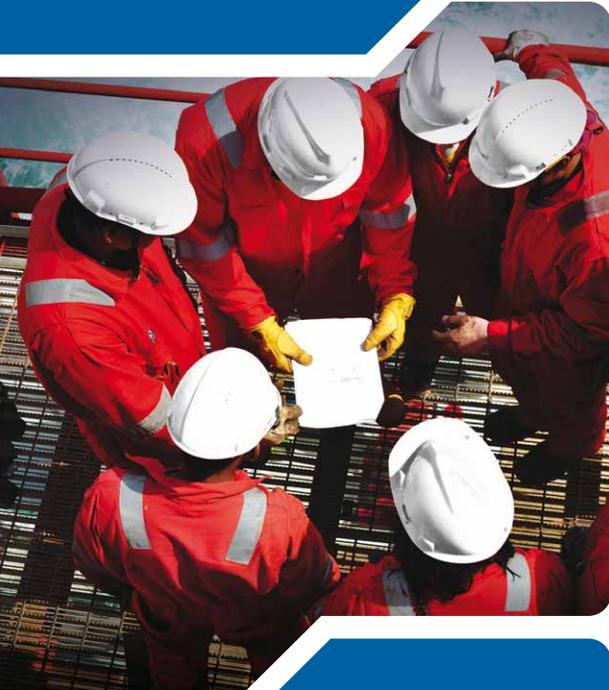


BP Clair Ridge



Client:
BP Exploration Operating
Company Limited

Location:
West of Shetland

Project Type:
SURF

Subsea 7 has been contracted by BP to assist in the development of one of the largest West of Shetland platform installations in recent history - Clair Ridge.

The workscope covers the engineering, procurement, fabrication and installation of a 6km 22-inch oil export pipeline and a 14km 6-inch gas export pipeline between the new Clair Ridge production facilities and existing Clair Phase 1 export systems, to allow product to be transported from Clair Ridge to Sullom Voe Terminal (SVT).

The scope also includes the supply and installation of three manifold structures and two umbilical jumpers as well as the field tie-ins, testing and pre-commissioning activities.

BP Clair Ridge

Project

BP Clair Ridge

Client

BP Exploration
Operating Company
Limited

Location

Approx. 75 km West
of Shetland

Water depth

150m

Project Type

SURF

Date Awarded

February 2012

Date Completed

Ongoing

Vessels/Spoolbases Utilised

Normand Oceanic
Seven Pelican
Acergy Discovery
Seven Petrel
Seven Navica
Skandi Seven
Vigra Spoolbase
Wick Fabrication site

Overview

The Clair Ridge project is the second phase of development of the Clair Field and will produce the reserves from the ridge area of the reservoir to the North-East of the initial Clair Phase 1 installation.

Located approximately 75km West of Shetland in water depths of up to 150m, the Subsea 7 scope of work on the Clair Ridge project consists of:

- Fabrication, installation and tie-in of one 14.1km, 6-inch gas pipeline
- Fabrication, installation and tie-in of one 5.5km bundle pipeline system consisting of a 22-inch oil pipeline and fibre optic cable
- Fabrication and installation of three subsea manifolds: one SSIV, one SSIV/Wye structure and one tie-in structure for the 6-inch pipeline
- The procurement and installation of two control umbilicals - totalling 650m, between each platform and their corresponding SSIV
- Procurement and installation of all tie-in spools.

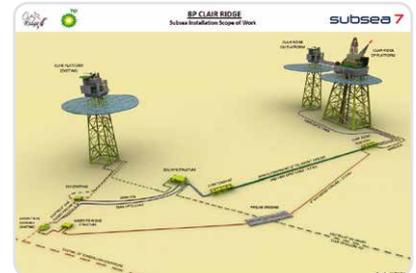
The scale of operations for the Clair Ridge development makes it one of the largest North Sea projects that Subsea 7 has been awarded in recent times. As an example of its size, Subsea 7's offshore installation scope has been split into three campaigns spanning over three years (2013-2015) and uses seven different vessels. Although demanding, Subsea 7's increased engineering capacity and fleet size has made bidding on and delivering capital-heavy projects such as Clair Ridge a possibility.

All design and installation engineering for the Clair Ridge project is being conducted out of Subsea 7's Aberdeen offices with a small contingent of engineers assisting from the Sutton office in London and Pipeline Production Group in Glasgow. This relatively local mix of engineers ensures that a wealth of North Sea experience is on hand to deliver Subsea 7's first bundle system West of Shetland.

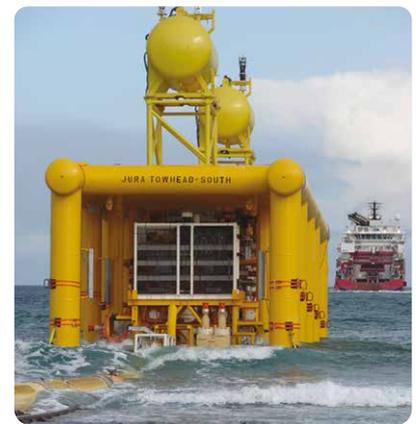
One challenging aspect of the installation engineering is the tying-in of the Clair SSIV/Wye structure to the existing 22-inch oil export line to Sullom Voe Terminal. To avoid having to de-oil the entire 105km line, a temporary in-pipe isolation method is being developed. The concept is based upon propelling a high friction pig train downstream of a dummy spool to establish an isolation, before the removal of the spool and subsequent installation of an in-line valve. The SSIV structure will then be tied in and tested against the valve. Close collaboration with industry isolation specialists and suppliers will ensure that this isolation proves successful.

With the complex nature of the scope of work and interfaces, Clair Ridge is seen as a model of the type of project that Subsea 7 is committed to delivering in a safe and cost-effective manner.

- 2 x Umbilicals (totalling 650m)
- 1 x Rigid pipeline (14.1km)
- 1 x Bundle system (flowline and fibre optic cable, 5.5km)
- 3 x Manifolds (SSIV, SSIV/Wye and tie-in structure)



BP Clair Ridge Field Layout



Bundle Launch in Wester Site, Scotland



Seven Navica Laying Pipe