

The Erskine replacement pipeline project, The North Sea



Project description:

The Erskine field was originally developed and came on stream in December 1997. The HT/HP gas condensate was transported from the Erskine unmanned platform via a 30 km multi-phase pipe-in-pipe flowline to the Lomond production platform. On 8 January 2000, while Erskine production was suspended and the platform shut-in, a loss of pressure was noted in the export pipeline. Subsequent surveys showed that a major pipeline failure had occurred at one location with local outer pipe defects at nine other locations.

The Erskine field was brought back on line on 30 November 2000. This means that in less than 10 months a 30 km 16"/20" pipe-in-pipe pipeline was engineered, manufactured, installed and on stream.

The pipes were manufactured at LOGSTOR's site in Fredericia, Denmark, shipped to Norway for double-jointing and then shipped to EMC's lay-barge Castoro Sei for installation.

The overall U-value for the pipe-in-pipe was 1.13 W/m²K (0.2 Btu/ft² hr°F).

[We document the difference]

Pipe-in-pipe element

The pipe-in-pipe elements consist of an OD16"/406,4 x 15,9 mm inner pipe and an OD 20"/508 x 14,3 mm outer pipe API 5L X65. Texaco supplied both inner and outer pipes.

The flowlines were manufactured by Mannesmann, Germany and anticorrosion coating, fusion bonded epoxy (FBE) was supplied by British Steel. All pipes were shipped to our facilities in Fredericia, Denmark.

All pipe-in-pipe elements were manufactured as single 12 m pipe lengths except for a few pup pieces (short pipe lengths).

Insulation

The polyurethane foam was injected into the cavity between the inner and outer steel pipes with a nominal density of 110 kg/m³.

Sleeve field joints

The sleeve field joint consisted of two welded steel halfshells. In order to maintain continuous and fast installation of the flowlines, there were strict demands on free pipe ends and tolerances as well as on centreline deviation between the two pipes.

The field joints were insulated on Castoro Sei using mineral wool mats prior to installation of the welded halfshells.

Supply details

Manufacturing time at LOGSTOR's plant in Fredericia was 6 weeks in total based on 5-day working weeks.

Installation

The installation was carried out by EMC on the lay-barge Castoro Sei. The lay rate was approx. 1.1 km per day.

Contractor

European Marine Contractors

Owner

Texaco



[We document the difference]