

OIL AND GAS FIELDS IN NORWAY

INDUSTRIAL HERITAGE PLAN



KVITEBJØRN

The Kvitebjørn field lies in block 34/11, about 20 kilometres south-east of Gullfaks. Proven in 1994, it contains both gas and condensate. The water depth is 190 metres at the platform site, and varies otherwise between 170-250 metres.

Reservoir and recovery strategy

Located 4 000 metres beneath the seabed, the reservoir covers 44 square kilometres. Gas and condensate are contained in a 150-metre-thick sandstone layer. The special feature of Kvitebjørn is its high pressure and temperature. It is produced through pressure reduction.

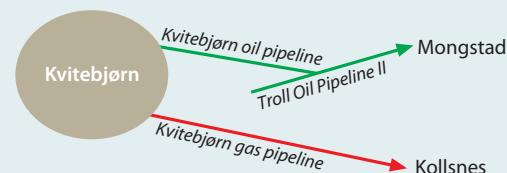
Transport

Gas is piped through a 30-inch line running for 147 kilometres to the receiving terminal at Kollsnes near Bergen for processing and onward transport to continental Europe. Capacity in this facility exceeds Kvitebjørn's own requirements, and arrangements have accordingly been made to tie in other fields. These



include Visund. The water depth along the pipeline route varies from 190 to 350 metres.

Condensate from the field is carried in the Kvitebjørn oil pipeline, which ties into Troll Oil Pipeline II with a Y-piece. The 16-inch condensate line is 90 kilometres long.



Development solution

Kvitebjørn has been developed with a fixed steel platform for production, drilling and quarters. Ten production wells and one well for depositing drill cuttings and polluted water have been drilled from the platform. Its steel jacket is higher and slimmer than similar structures elsewhere in the North Sea. This structure was lifted into place in the late summer of 2002, and built in two sections because of limited lifting capacity. The lower part is 45 metres tall, weighs about 4 600 tonnes and was built in the vertical position. Standing 167 metres high and weighing roughly 7 500 tonnes, the upper section was fabricated horizontally and rolled up. After the lower section had been installed and attached to the seabed with 16 piles, the upper part was lifted into place and fixed to the lower.

This installation method had not been used before for North Sea projects, and represented a concept based on the alternative application of known solutions.

The topside processing facilities comprise an inlet separator which splits the wellstream into rich gas, condensate and water at a pressure of 135 bar. Condensate is stabilised in second- and third-stage separators. Gas from the oil stabilisation plant is pressurised in an electrically-driven four-stage compressor. The platform generates its own power from two turbines. Kvitebjørn is operated from Bergen and coordinated with the Troll Gas facilities. In stable operation, it has a crew of 25 people including catering staff.

Visund	
Block	34/11
Production licence	193
Awarded	1985
Total recoverable reserves	172.3 mill bbl oil 74 bn scm gas 3 mill tonnes NGL
Remaining at 31 Dec 2008	126.4 mill bbl oil 59.4 bn scm gas 1.7 mill tonnes NGL
Discovery year	1994
Approved for development	14 Jun 2000
On stream	26 Sep 2004
Operator	Statoil
Operations organisation	Bergen
Main supply base	Florø
Licensees	
Statoil	58.55%
Petoro	30.00%
Enterprise Oil Norge	6.45%
Total E&P Norge	5.00%



The Kvitebjørn platform in 2004. Photo: Øyvind Hagen/Statoil