



### Wellbore History

**GENERAL**

Well 6406/2-7 was the fourth wildcat drilled in the PL 199 license. The well was drilled on the eastern part of the Erlend structure in the western part of block 6406/2, southwest of the Kristin Field and northwest of the 6406/2-6 Ragnfrid discovery on Haltenbanken. The Erlend structure is an easterly dipping segmented horst. Well 6406/2-7 was drilled high on the Erlend structure's southeastern high. The main objective of well 6406/2-7 was to test the hydrocarbon potential of the Erlend structure within the Early to Middle Jurassic Fangst and Båt Group sandstones. Late Cretaceous Lysing and Lange sandstones were secondary targets for the well.

**OPERATIONS AND RESULTS**

Wildcat well 6406/2-7 was spudded with the semi-submersible installation "Transocean Arctic" on 22 September 1999 and drilled to TD at 4981 m (4977 m TVD) in the Early Jurassic Tilje Formation. Shallow gas was not encountered in this well. Drilling went without major problems, but leakage in the 7" liner lap led to 8 days NPT. The well was drilled with water based bentonite mud down to 1406 m, with water based KCl mud from 1406 m to 2719 m, and with oil base mud from 2719 m to TD. Pore pressures of the Jurassic units were very high, reaching a gradient of 1.99 g/cc BMW in the upper part of the Garn Formation, and the overpressures in lower Tofte and lower Ile Formations were the highest measured in the area to date. The main result of well 6406/2-7 was the Erlend discovery of gas/condensate in the Garn and Ile Formations as proven by a DST in Garn and further MDT fluid samples in both formations. Increasing amounts of gas were measured in MDT samples upwards in Tofte Formation. In addition there were good indications of hydrocarbons in Lower Lange sandstones, but no hydrocarbon fluid samples were obtained from these units due to poor reservoir quality. The Tilje Formation appeared to be water bearing in the well position. Three conventional cores covering an 81,5 m section were cut in Not, Ile and Tofte Formations, with 97.4 % recovery. MDT samples were collected from the Garn (4558.5 m), Ile (4614.4 m and 4637.6 m), and Tofte (4712 m, 4721,7 m and 4738 m) Formations. The samples from the Garn, Upper Ile and Upper Tofte Formations contained free hydrocarbons. The deepest sample from 4738.0 m in Tofte was from a water column, whereas the other two sampled depths were in a transition zone. The samples collected from the lower Ile and Tofte Formations contained water. The well was suspended for possible later side-tracking as a gas and condensate discovery on 26 December 1999.

**TESTING**

The well was production tested from perforation interval 4558-4573 m in the Garn Formation. At the end of the flow period rates were measured to 496000 Sm3/D gas and 678 Sm3/D condensate (12.7 mm choke). The Gas to Oil Ratio at separator conditions 40 bar and 40 deg C was 746 Sm3/Sm3.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 6406/2-7