



## Wellbore History

Well 6605/8-1 is an exploration well on a Late Cretaceous Lysing Prospect situated on the western flank of the Fles North rotated fault block structure in the Vøring Basin outside Mid Norway. The primary objective was to test the presence of movable hydrocarbons in the Lysing prospect. A secondary objective was to investigate the reservoir potential of the Nise Formation

### OPERATIONS AND RESULTS

Wildcat well 6605/8-1 was spudded in 838 m water depth with the semi-submersible installation Transocean Leader on 14 June 2005 and drilled to TD at 4513 m in Late Turonian sediments of the Lange Formation. Operations went without significant technical problems. No shallow gas or shallow water flow was observed. The well was drilled with spud mud down to 2500 m and with KCl/Polymer/Glydril mud from 2500 m to TD.

The well penetrated the main target at 4184 m, a 70 m thick Lysing Formation deep-water turbidite sand of Early Coniacian age. Gas was recorded from 4180 m. There were two gas zones separated by a water zone. The upper zone had gas down to a free water level inferred at 4221 m (4193 m TVD MSL). The lower gas zone, at 4253 m, was very thin and was approximately 20 bar overpressured compared to the upper zone. Gas shows were also encountered in Early Campanian Nise siltstone at 3064 m and a deeper Lysing sandstone unit at 4354 m.

One 9 m long core was taken in the interval 4190-4199 m in the upper Lysing reservoir. It contained sandstones interbedded with thin mudstone layers. MDT fluid samples were taken at 4230.55 m (water), 4231.4 m (water), 4209.4 m (gas), 4211.86m (gas), and at 4253.5 m (gas which gave a dark brown/black liquid when flashed). Temperature at seabed was measured to -1.5 deg C. An MDT run in cased hole after the DST and almost 3 weeks after the last mud circulation gave a maximum temperature of 146 deg C at 4230 m. This was believed to be close to the true formation temperature. From this an average temperature gradient of 4.37 deg C/100 m and a temperature of 158 deg C at total depth was estimated.

The well was permanently abandoned 22 October 2005 as a gas discovery.

### TESTING

A drill stem test was performed over the interval 4184-4211.5 m in the upper Lysing reservoir with a flow rate of approximately 100 000 Sm<sup>3</sup>/d on a 1 inch choke. The gas/condensate ratio was 230000 Sm<sup>3</sup>/Sm<sup>3</sup>. The gas contained 4 - 5 ppm H<sub>2</sub>S and 6.5 % CO<sub>2</sub>. The pressure drawdown in the test was up to 530 bar. This resulted in large gas expansion and subsequent cooling in the well stream. The temperature recording during the test, 116 deg C towards the end of the main flow, was thus considered as not representative for the formation.

## LITHOSTRATIGRAPHY & HISTORY FOR WELL: 6605/8-1