



Wellbore History

GENERAL

Appraisal well 31/2-14 was drilled on the north-western margin of the Troll field. The main objectives of the well were to demonstrate the production potential for oil in the northern part of the Troll oil province, to evaluate the proposed template development scheme and to confirm the predicted extension of high energy progradation sands in the northern region.

OPERATIONS AND RESULTS

Well 31/2-14 was spudded with the semi-submersible installation Borgny Dolphin on 23 April 1984 and drilled to TD at 1725 m in the Middle Jurassic Fensfjord Formation. The site survey before spud showed, as usual for the area, a seabed with numerous pockmarks (12 pockmarks/km³ on average). After setting the 13 3/8" casing shoe at 1498 m a leak in the kill-line was discovered, leading to repairs of the BOP and replacement of the marine riser. After 10 days lost time normal operations could resume. The well was drilled with seawater and hi-vis pills down to 814 m, with KCl/polymer mud from 814 m to 1513 m, and with chalk mud from 1513 m to TD.

No sands were encountered above the Jurassic. The well encountered hydrocarbons in the Late Jurassic Sognefjord Formation. Top reservoir was penetrated at 1533 m (1508 m SS). The GOC was at 1566 m (1541 m SS) and the FWL was at 1592 m (1567 m SS). The oil-bearing interval consists of medium to low quality sands with a very clean layer (7m) some 3 m above the OWC. Below 1595 m (top Heather Formation) the sands are micaceous. The core measured permeability values range from 10 mD to 10 Darcy. In the gas bearing part of the cored interval no to weak fluorescence was recorded. In the oil zone (1561 - 1592 m) the fluorescence varied from weak to strong. Below 1594 m no fluorescence was recorded. Seven cores were cut from 1535 m to 1599 m in the Late Jurassic sequence. No samples were taken on wire line.

The well was permanently abandoned on 21 June as a gas and oil appraisal.

TESTING

The clean sand interval 1583.3 - 1590.3 m in the oil zone was perforated and completed with an internal gravel. A long duration production test was carried out in an attempt to obtain gas breakthrough. The well was beaned up to 1335 Sm³/day and flowed for 9.5 days. Gas breakthrough did not occur. The oil was a 28.1 deg API gravity oil with a GOR of 60 Sm³/Sm³. Maximum temperature recorded during the test was 68.3 deg. C, which correspond to a temperature gradient of 53 deg C/km above the reservoir.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 31/2-14