



Wellbore History

GENERAL

The Skarv structure is located in the Nordland II area west of the Nordland Ridge on the Dønna Terrace. The structure consists of three fault segments called A, B, and C. Well 6507/5-5 was drilled on the B-segment. The primary objective of the well was to appraise hydrocarbons in sandstones of the Early to Middle Jurassic Garn, Ile, and Tilje Formations. Secondary objective was to verify significant hydrocarbon columns (> 10 m continuous columns) in the Cretaceous Lange Formation.

OPERATIONS AND RESULTS

Appraisal well 6507/5-5 was spudded in the second attempt with the semi-submersible installation West Alpha on 28 November 2002 and drilled to TD at 3950 m in the Early Jurassic Åre Formation. No shallow gas was encountered. While drilling, a leak in the 9 5/8" casing was discovered and repaired. The well was drilled with gel and seawater down to 1051 m, with KCl/Polymer/Glycol mud from 1051 m to 2100 m, with oil based mud (ENVIROMUL NAP) from 2100 to 3642 m, and with KCl/Polymer mud from 3642 m to TD.

Top Lysing Formation came in at 2735.6 m TVD MSL, top Lange Formation at 2739 m TVD MSL, top Garn Formation at 3629.5 m TVD MSL, top Ile Formation at 3722.5 m TVD MSL, top Tilje Formation at 3811.6 m TVD MSL, and top Åre Formation at 3905.2 m TVD MSL. A 55 m oil column with an oil-down-to contact was encountered in the Garn Formation. Amplitude anomalies showed good structural correlation between the A-, B-, and C-fault segments, but hydrocarbon phase could not be predicted. The Lysing Formation was tight with no shows. Weak and questionable shows (oil based mud) were seen in cuttings from carbonate lithologies in the Lange Formation in the form of visible and UV fluorescent residue. Such shows were observed in the intervals 2951 m to 2985 m, 3022 m to 3030 m, and 3432 m to 3469 m. Shows in the form of visible and UV fluorescent residue were observed also in sandstone cuttings from the interval 3630 m to 3663 m in the Garn Formation.

One 81 m core was cut from 3655 m to 3736 m from the Garn and into the Not Formation. The full core length was recovered, but the core was ejected at rig floor due to gas expansion and 12.2 m of the core was damaged. The damaged interval was puzzled together onshore, but the interval between 3668.25 m and 3672 m was not submitted to the NPD. Forty-five pressure points were taken. MDT fluid samples recovered oil from 3668 m and 3653 m. The samples appeared to be of good quality and without contamination. The well was permanently abandoned on 14 February 2002 as an oil appraisal.

TESTING

The Garn Formation was perforated from 3651.5 m to 3706.5 m. The main flow produced oil at a rate of 5880 barrels/day (935 Sm³/day) with a 64/64" choke with a total of 5264 bbl (8364 Sm³) of oil produced in 30 hours. Gas rate was 5.8 mmscf/day (164238 Sm³ gas/day), giving a GOR of 176 Sm³/Sm³ during the main flow. Samples were taken on sample chambers on the test string and from the separator outlet and the wellhead. Mean down-hole temperature (DST temperature) was 132.9°C. Mean oil density was 0.855 g/cm³ and mean gas gravity was 0.735 (air = 1); mean CO₂ content in gas was 3.5%.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 6507/5-5