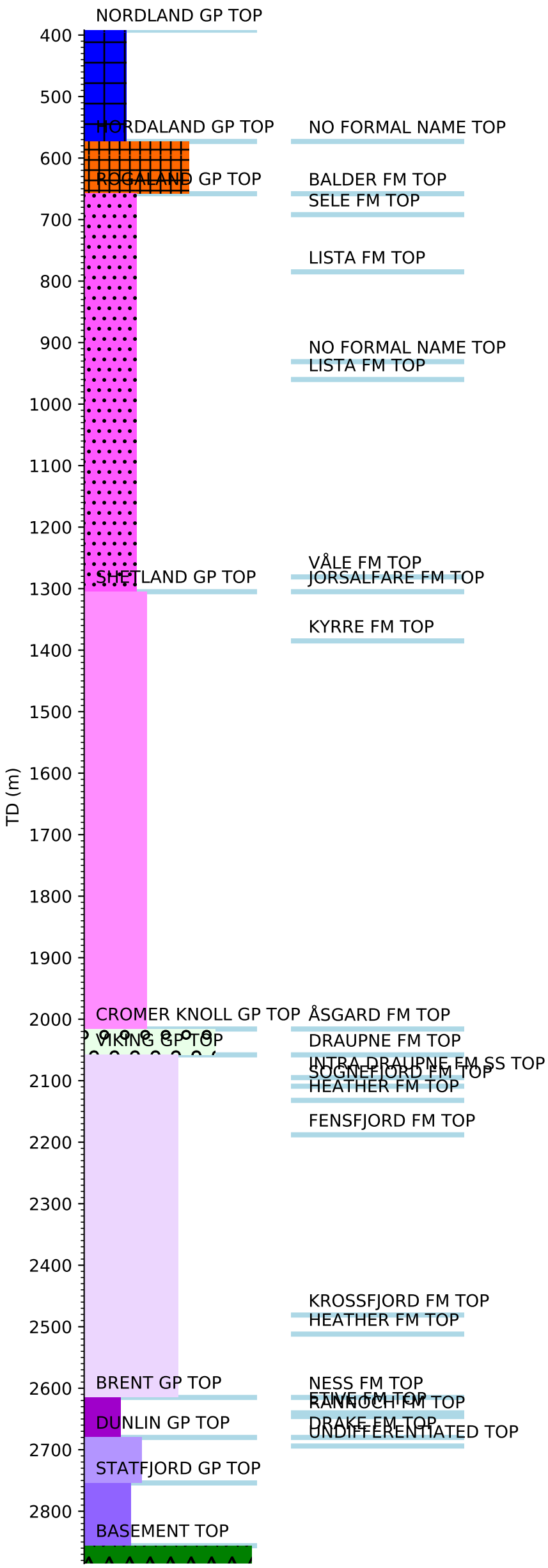

Wellbore History

GENERAL

Well 35/9-2 was designed to drill on the A-Structure in block 35/9 which is located in the northern part of the Horda Platform, in the footwall of the Sogn Graben boundary fault system. The well was drilled as a combined appraisal/wildcat well. The primary objective of the well was to appraise the hydrocarbon potential in the Late Jurassic Sognefjord and Fensfjord Formations, found oil and gas bearing in the 35/9-1 well. Secondary objective was to test the Middle -Early Jurassic sequence.

The total depth of the well was prognosed to 2830 m RKB, approximately 30 m into the Caledonian basement.

OPERATIONS AND RESULTS

Wildcat/Appraisal well 35/9-2 was spudded with the semi-submersible installation Vildkat Explorer on 1 January 1991 and drilled to TD at 2885 m in Caledonian basement. Due to hole angle problems, the well had to be re-spudded twice before drilling proceeded. No shallow gas or boulders were observed while drilling. In order to penetrate the target within the given tolerances, a kick-off was made at 1039 m. This resulted in a deviation of up to 14 deg. at 1287 m and TVD 8 m less than measured depth at final TD. The well was drilled with seawater and hi-vis pills down to 1018 m and with KCl/polymer from 1018 m to TD.

The well encountered oil and gas bearing sandstones from 2095 m in the Late Jurassic reservoirs. The gas/oil contact was found at 2324 m and oil was found down to 2341 m in the Fensfjord "C" Formation. Net pay gas zone was calculated to 171.26 m and net oil pay zone calculated to 13.13 m. The oil/water contact was not seen, but from extrapolation of RFT pressure gradients the OWC was estimated at 2367 m in the Fensfjord Formation. The best reservoir sand was found in the Sognefjord Formation. The Middle and Early Jurassic formations were penetrated and found water bearing. Above the Late Jurassic reservoirs only two weak shows were recorded in cuttings from thin sandstone stringers in the Tryggvason Formation. Weak patchy shows were recorded in the Fensford Formation at 2366 m to 2379 m, otherwise no shows were seen below OWC of the Late Jurassic reservoirs.

Nine cores were cut in the Viking Group, 3 in the Brent Group and 5 in the Dunlin Group. RFT fluid samples were taken at 2368.6 m (water and filtrate with small volume of gas), and at 2331.5 m (6.5 l oil and 0.81 Sm3 gas).

The well was permanently abandoned on 3 April 1991 as a gas/oil discovery.

TESTING

Four production tests were performed in the Late Jurassic Formations, one oil test and three gas tests. Production test data quoted below refer to maximum rates at the specified choke sizes.

Production test No. 1 was performed in the interval 2329.9 - 2342.4 m in the Fensfjord "C" Formation. It flowed oil at 289 Sm3/d and gas at 206300 Sm3/d on a 12.7 mm choke. The GOR was 714 Sm3/Sm3. The oil gravity was 0.826 g/cc and the gas gravity was 0.608 (air=l). The wellhead pressure was 144.4 bars with a wellhead temperature of 44.6 deg C. The well produced 0.6% CO2 and no H2S. Bottom hole temperature was 83.8 deg C.

Production test No. 2 was performed in the interval 2295.5 - 2310.5 in the Fensfjord "C" Formation. It flowed condensate at 206. Sm3/d and gas at 881000 Sm3/d on a 25.4 mm choke. The GOR was 4276 Sm3/Sm3. The condensate density was 0.720 g/cc and the gas gravity was 0.668 (air=l). The wellhead pressure was 112.7 bars and the temperature was 47.3 deg C. The well produced 0.5% CO2 and no H2S. Bottom hole temperature was 83.2 deg C.

Production test No. 3 was performed in the interval 2187.2 - 2211.2 Fensfjord "D" Formation. It flowed condensate at 206 Sm3/d and gas at 803000 Sm3/d on a 25.4 mm choke. The GOR was 3897 Sm3/Sm3. The condensate density was 0.732 g/cc and the gas gravity was 0.664 (air=l). The wellhead pressure was 106.6 bars and the temperature was 43.3 deg C. The well produced 0.5% CO2 and no H2S. Bottom hole temperature was 79.3 deg C.

Production test No. 4 was performed in the interval 2100.6 - 2130.6 m in