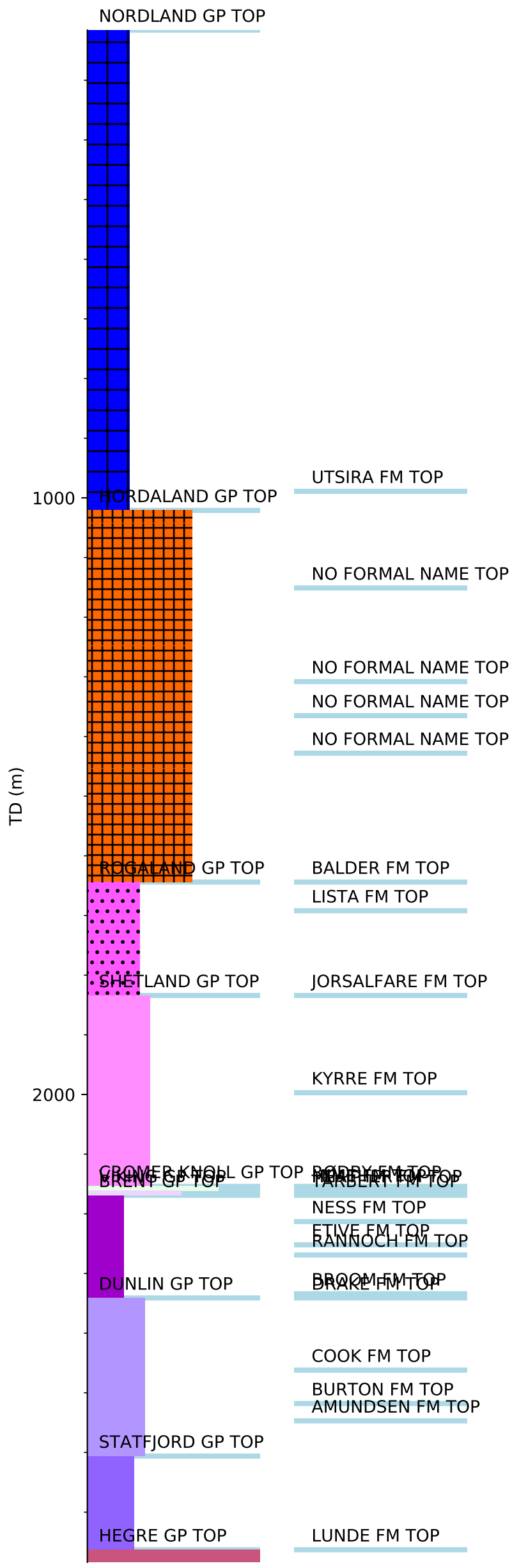

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 34/7-12

Wellbore History

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Well 34/7-12 is a replacement well for well 34/7-11, which was junked for technical reasons. It is located in the Tampen Spur area in the Northern North Sea. Its overall purpose was to assess the hydrocarbon potential in the "B"-structure in the southern part of the block. The primary objectives were to establish the thickness and reservoir quality of the prospective Brent the Brent Group in Group, and to determine the OWC. The secondary objectives were to assess the potential of the Dunlin Cook Formation reservoir, the Statfjord Formation and the upper part of the Triassic Lunde unit B/C reservoir section. TD was prognosed to 2900 m.

OPERATIONS AND RESULTS

Wildcat well 34/7-12 was spudded 20 m north of the 34/7-11 location. It was drilled with the semi-submersible installation Treasure Saga on 11 October 1987 and drilled to TD at 2784 m in the Late Triassic Lunde Formation. The well was drilled without significant technical problems. The well was drilled with spud mud down to 852 m and with KCl mud from 852 m to TD.

The Brent Group came in at 2169 m, and Statfjord Formation at 2606 m. Lunde Formation was encountered at 2763 m. Oil/water contact was defined in the Ness Formation at 2250 m.

The Brent Group, from 2169 to 2340.5 m (171.5 m thick) comprised the sandy Tarbert Formation,the interbedded shaly and sandy Ness Formation, the sandy Etive and Rannoch Formations and at the base the conglomeratic Broom Formation. The Dunlin Group was penetrated from 2340.5 to 2606 m (265.5 m thick), comprising the shaly Drake Formation at the top, the Cook Formation with interbedded sandstone and claystone, the Burton Formation with claystone and minor sandstone and the Amundsen and Calcareous Amundsen Formations having clay stones with minor limestone. The Statfjord Formation, 157 m thick from 2606 to 2763 m, was dominated by sandstones with minor to interbedded claystone. The Late Triassic upper Lunde Formation was encountered at 2763 m, and comprised clay stone interbedded with siltstone.

The Brent Group was hydrocarbon-bearing through the Tarbert Formation and into the Ness Formation with an OWC at 2250 m, confirmed by logs and FMT pressure gradients. Shows were seen down to 2268 m. In addition, shows were reported from a sidewall core cut at 1803 m in a Paleocene sand. Logs also indicated the presence of a two metre thick residual or hydrocarbon bearing zone from 1801 m to 1803 m. Shows were also reported in siltstones in the interval 2060 to 2142 m in the Late Cretaceous Kyrre Formation. No indications of hydrocarbons were reported below 2268 m.

A total of 10 cores were cut from 2169 to 2360.5 m in the Brent Group and 20 m into the Dunlin Group. A total of 180.8 m core was recovered (94.4 % of cored section). FMT segregated fluid samples were taken at 2171 m (oil and gas), 2171.5 m (oil and gas), 2189.5 m (two samples in different runs, both with oil and gas), 2249.5 m (gas and oil-cut mud), and at 2252.5 m (water). The samples from 2171 and 2189.5 m were analysed and found to be very similar with oil densities close to 0.845 g/cm3, gas gravities in the range 0.863 to 0.879, and CO2 contents in the range 0.22 to 0.29 %.

The well was permanently abandoned on 17 December 1987 as an oil discovery.

TESTING

Three drill stem tests were performed in well 34/7-12.

DST 1 tested the interval 2276.2 - 2282.2 m in the Rannoch Formation and produced up to1297 Sm3 water/day through a 12.7 mm choke. Up to 10% sand production was reported in the beginning of the main flow period. Maximum down-hole temperature recorded (at 2230.7 m) was 84.2 deg C.

DST 2 tested the interval 2229 - 2235 m in the Ness Formation. On a 12.7 mm choke this test produced 881 Sm3 oil and 59383 Sm3 gas /day. The corresponding GOR was 68 Sm3/Sm3, the oil density was 0.841 g/cm3, and the gas gravity was 0.722 (air = 1). Maximum down-hole temperature recorded (at 2202.6 m) was 83.4 deg C.

DST 3 tested the interval 2205.5 - 2209.5 m in the lower Tarbert