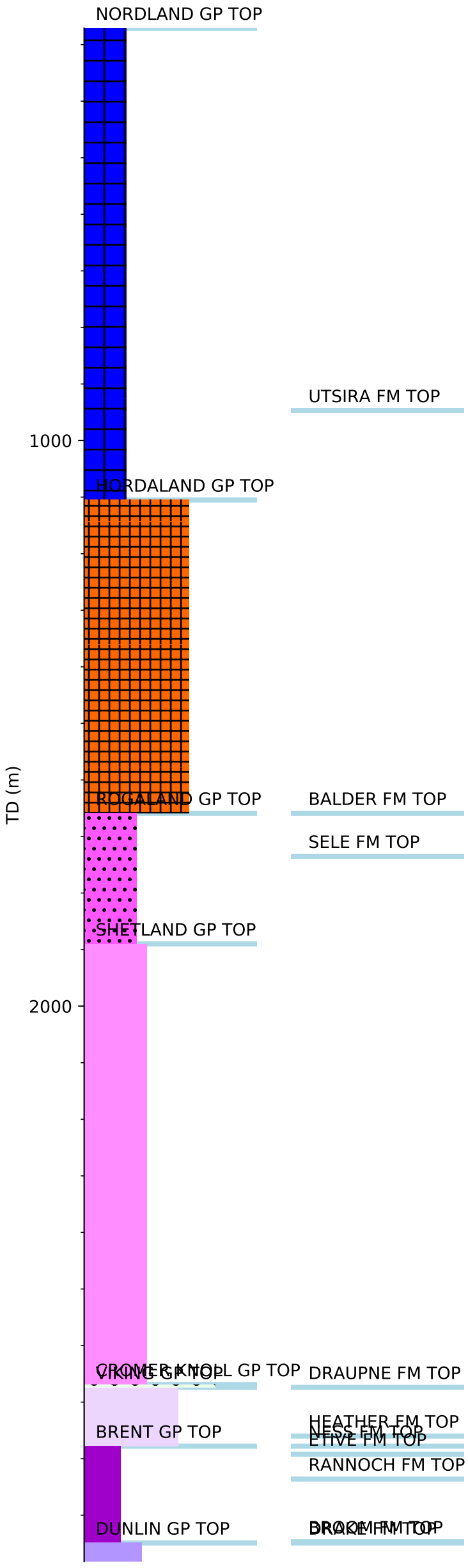
Groups

Formation Tops



Wellbore History

GENERAL

Well 33/9-14 was drilled on the Statfjord Nord Field on Tampen Spur in the North Sea. The primary objective of the well was to verify the lateral and vertical distribution of sand within a thick Volgian sequence and to prove oil below 2690 m MSL in this sequence (deepest oil in Volgian, well 33/9-8). The Brent Group was a secondary target.

OPERATIONS AND RESULTS

Appraisal well 33/9-14 was spudded with the semi-submersible installation Deepsea Bergen and drilled to TD at 2982 m in the Early Jurassic Drake Formation. There were signs of shallow gas from 408 409 m, but the gas bearing sands created no problems. No significant problem was encountered in the operations. The well was drilled with seawater/gel down to 414 m, with gypsum/polymer mud from 414 m to 2670 m, and with gel/lignosulphonate mud from 2670 m to TD.

The reservoir (interpreted as Kimmeridgian age Intra Draupne Formation Sandstone) came in as prognosed at 2674 m. The oil/water contact was taken from the logs to be at 2747 m, while pressure gradients suggest the contact could be five meter higher up. Intermittent weak shows were described down to 2800 m, else no shows were described in the well. The reservoir properties were very good with porosities up to 30 %. The Brent Group, Ness Formation came in at 2777 m. It was water wet.

Six cores were cut in the Intra Draupne Formation Sandstones and the Brent Group in the interval 2680 to 2879 m. The recovery was generally good except for core 3, for which only 0.5 m was recovered. The core-log depth shift was 3.0 to -3.5 m for all cores. FMT fluid samples were taken at 2757 m and at 2798.4 m.

The well was permanently abandoned on 9 April 1988 as an oil appraisal well.

TESTING

Two DST tests were performed in the well.

DST 1 tested the interval 2746.8 - 2759.8 m. It produced 1400 m3 water and 8500 Sm3 gas /day through a 15.9 mm choke. Water production declined to 1287 m3/day at the end of the test. At the end of the test 5%, oil was produced with the water. The DST reservoir temperature was 96 °C.

DST 2.1 tested the interval 2718 - 2732 m. It produced 1370 Sm3 oil and 74670 Sm3 gas /day through a 14.3 mm choke. The oil production declined to 1310 Sm3/day at the end of the test. The GOR varied accordingly from 55 to 57 Sm3/Sm3, while oil density and gas gravity is reported as 0.837 g/cm3 and 0.704 (air = 1), respectively. The DST reservoir temperature was 95 °C.

DST 2.2 teste the interval 2718 - 2738 m + 2675 - 2705 m. It produced 1416 Sm3 oil and 58060 Sm3 gas /day through a 14.3 mm choke. The GOR was 41 Sm3/Sm3, the oil density was 0.837 g/cm3, and the gas gravity was 0.703 (air = 1). The DST reservoir temperature was 95 °C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 33/9-14