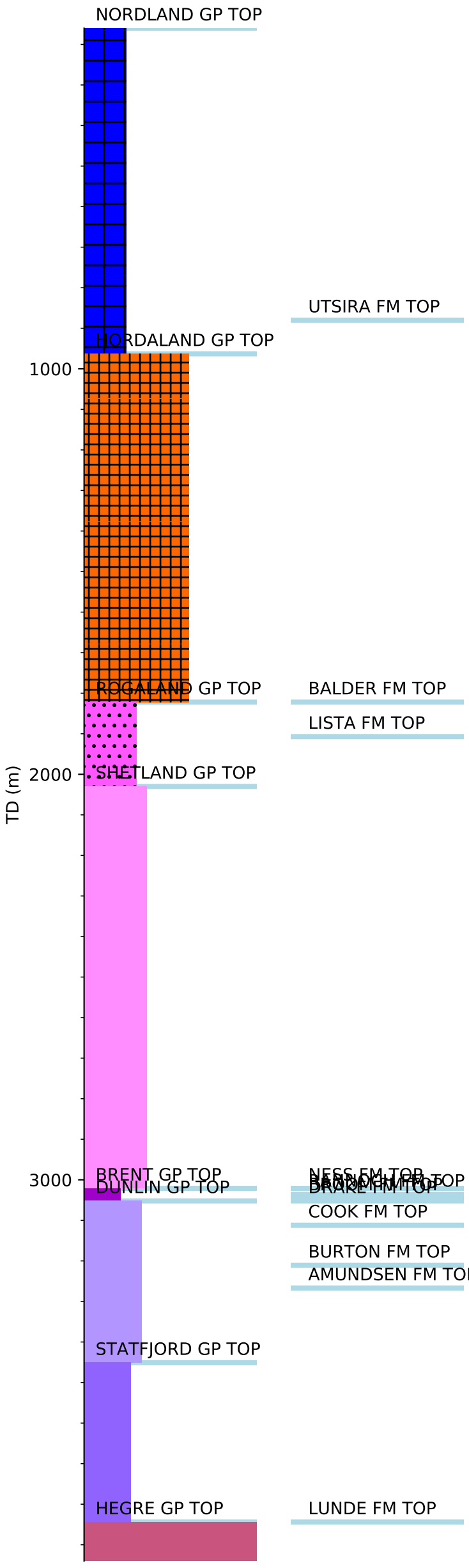

Wellbore History

GENERAL

Well 34/10-38 S was drilled to appraise the 34/10-17 Rimfaks Discovery south-west of the Gullfaks field in the North Sea. The primary objective was to test the hydrocarbon potential of the Middle Jurassic Brent Group in Segment 1 of the structure. Secondary objective was to test the hydrocarbon potential of the Early Jurassic Statfjord Group in Segment 2.

OPERATIONS AND RESULTS

Appraisal well 34/10-38 S was spudded with the semi-submersible installation Deepsea Bergen on 5 April 1995 and drilled to TD at 3940 m (3393 m TVD) in the Late Triassic Lunde Formation. Drilling went forth without significant problem. Lost time was mostly related to logging problems in the 8 1/2" section. The well was drilled with bentonite and CMC/EHV down to 670 m, with ANCO 2000 mud from 670 m to 2075 m and with oil based Safemul PE/SE mud from 2075 m to TD.

The results of the well differed from the geological prognosis. The Viking Group and most of the Brent Group in segment 2 was eroded and the remaining of the Brent Group was heavily faulted and fractured. Top Brent Group came in at 3021 m (2653.8 m TVD). Top Statfjord Group was penetrated at 3451 m (2995.2 m TVD), about 200 m shallower than prognosed. The Brent Group, the Cook Formation and the Statfjord Group proved to be hydrocarbon bearing. Pressure samples and log analysis proved an oil-water contact at 3585.6 m (3103.5 m TVD) in the Statfjord Group. Shows and log analysis indicated, however, oil with low saturation down to approx, 3658 m.

Nine cores were cut in the well. The first core was cut from 3140 to 3159 m but recovered only a 10 cm piece. Cores 2 to 9 were cut in the Statfjord Group from 3465 m to 3631 m with generally good recovery. The core depths were from 0 to 3 m shallower than the log depths. FMT fluid samples were taken in the Brent Group at 3039.4 m (gas and condensate), and in the Statfjord Group at 3456.5 m (oil and gas), 3567.5 m (oil and gas), 3643 m (oil and water), and 3812 m (water). The oil in the sample from 3643 is believed to be residual oil mobilised by the oil base in the mud.

The well was permanently abandoned on 29 May 1995 as an oil and gas appraisal well.

TESTING

Two intervals were tested in a comingled drill stem test from below and above the OWC in the Statfjord Group.

The main objective for DST1 A from 3637 to 3646 m was to test the type of moveable fluid below the OWC where shows, a low hydrocarbon saturation and oil in an FMT sample indicated presence of oil. The result of the test was water at a rate of 23 Sm3/day through a 64/64" choke. Only traces of oil were produced. The flowing bottom hole temperature was 113.2 deg C.

DST1 B tested the interval 3561 to 3570 m in the oil zone in addition to 3637 to 3646 m. DST1 B produced 858 Sm3 oil and 199056 Sm3 gas /day through a 36/64" choke. No water was produced. The GOR was 232 Sm3/Sm3, the oil density was 0.846 g/cm3, and the gas gravity was 0.807 (air = 1). The flowing bottom hole temperature was 115.4 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 34/10-38 S