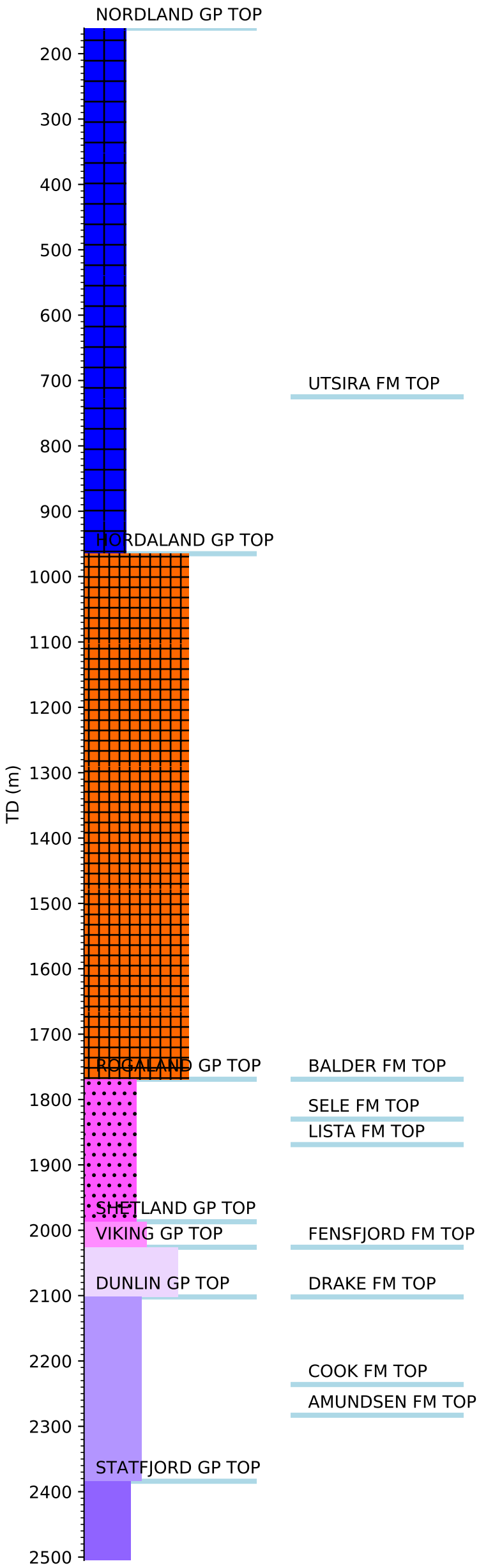
Groups

Formation Tops



Wellbore History

GENERAL

Well 31/4-7 was drilled on the southernmost part of the Brage Horst, close to the junction between the Brage/Oseberg fault and the Troll Fault. The primary objective was to test the hydrocarbon potential and the internal stratigraphy on the Brage Horst compartment on the western flank of the Brage Field. Neighbouring well 31/4-2 to the north on the Brage Horst found live oil in two thin sandstones in the Brent Group, while wells 31/4-3, 4, and 5 on the main Brage structure on the Bjørgvin Arch had proved oil in the "Intra-Heather Sandstone Unit II" (Fensfjord Formation). The well was planned to be drilled 50 m into the Statfjord Group at 2765 +/- 50 m.

OPERATIONS AND RESULTS

Wildcat well 31/4-7 was spudded with the semi-submersible installation Vildkat Explorer on 26 July 1984 and drilled to TD at 2505 m in Late Triassic sediments of the Statfjord Group. No significant problem was encountered in the operations. The well was drilled with gel/spud mud down to 1000 m, with KCl/polymer mud from 1000 m to 1816 m, and with a NaCl/polymer mud from 1816 m to TD.

The well encountered hydrocarbon bearing sandstones and siltstones in the Fensfjord Formation and in the Statfjord Group sandstones. The Fensfjord Formation was poorly developed with sandstones grading to siltstones followed by siltstones. It was found gas bearing over the interval 2026 - 2056 m with a calculated net pay of 8 m, an average porosity of 20.5% and an average water saturation of 45%. The Statfjord Group came in at 2384 m and was found oil bearing down to the OWC at 2406 m. It consisted of fine to coarse sandstones. The net pay was calculated to be 12.5 m with a calculated average porosity of 22.2% and an average water saturation of 42.3%.

Five cores were cut in the well, starting at 2045 m in the Fensfjord Formation and stopping at 2150.5 m in Dunlin Group shales. Several attempts were made to obtain a segregated RFT sample in the Fensfjord Formation without success. Oil and gas was recovered in a segregated RFT sample at 2395.7 m in the Statfjord Group.

The well was permanently abandoned on 11 September 1986.

TESTING

Two drill stem tests were carried out.

DST 1 tested the interval 2389.9 - 2397.9 m in the Statfjord Formation. It produced 700 Sm3 /day oil and 25000 Sm3 gas /day through a 40/64" choke. The GOR was 36 Sm3/Sm3, the oil density was 0.83 g/cm3 and the gas gravity 0.775 (air = 1) with 2.5 % CO2 and no H2S. Maximum bottom hole temperature at reference depth 2356.5 m was 101.7 deg C.

DST 2 tested the interval 2028.5 - 2039.5 m in the Fensfjord Formation. It produced 26900 Sm3 /day gas with a water cut of 25% through a 36/64" choke. The test also produced some condensate. The gas gravity was 0.77 (air = 1) with trace CO2 and no H2S and the condensate gravity was 57.1 deg API. Maximum bottom hole temperature at reference depth 1991.8 m was 81.1 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 31/4-7