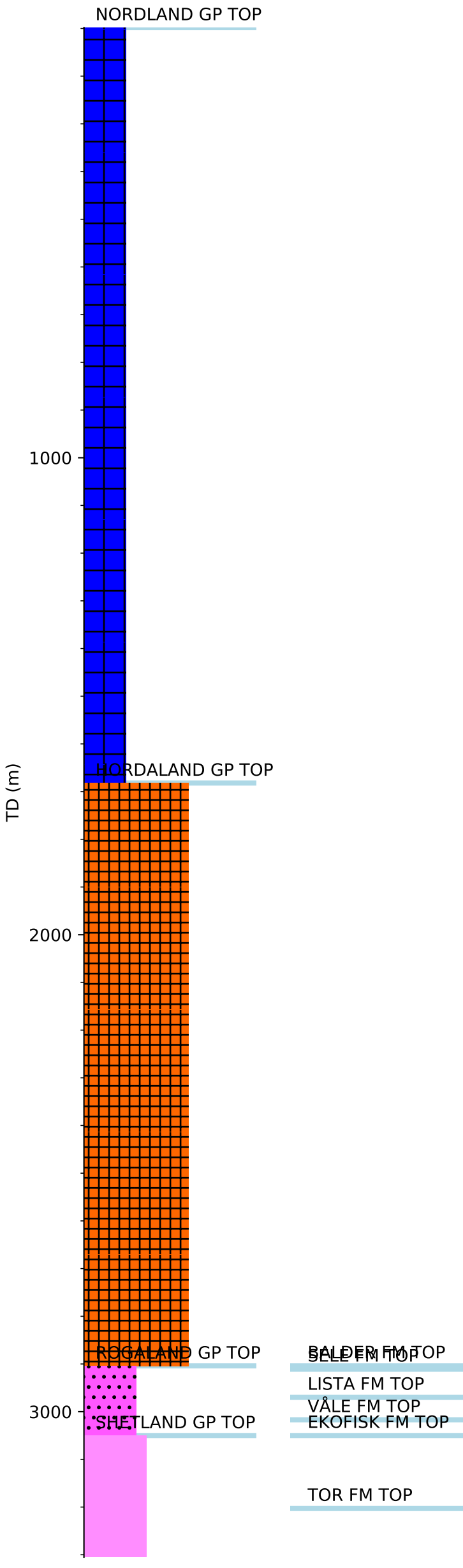
Groups

Formation Tops



Wellbore History

GENERAL

Wildcat well 2/4-2 (originally termed 2/4-1AX by the License) was drilled by Phillips as a replacement for well 2/4-1, which was junked at 1662 m in Miocene sediments due to an oil kick and severe circulation problems. The objective was to test the hydrocarbon potential of the Tertiary and top Cretaceous.

OPERATIONS AND RESULTS

Wildcat well 2/4-2 was spudded with the semi-submersible installation Ocean Viking on 18 September 1969 and drilled to TD at 3305 m in the Late Cretaceous Tor Formation. No significant problems occurred in the operations. The well was drilled with seawater and hi-vis pills down to 619 m, and with lignosulphonate mud from 619 m to TD.

The well discovered oil in Danian and Late Cretaceous chalk (Ekofisk and Tor Formations). The oil was found in two reservoirs separated by a hard, grey and tight lime mudstone in the base of the Ekofisk Formation. The upper, Ekofisk Formation reservoir was encountered at 3033 m and continued down to the tight lime mudstone at 3183 m. The lower, Tor Formation reservoir extended from 3203 m to 3257 m. Comparison between DST oil from the Ekofisk Formation in well 2/4-2 and the Miocene "kick-oil" encountered in well 2/4-1 showed that the 2/4-1 Miocene oil is a heavier oil with a higher asphaltene content and lower paraffin content than the 2/4-2 oil.

Eight conventional cores were cut with a total of 48.5 m recovered. Core 1 was cut in Early Miocene from 1664 to 1679.4 m, while cores 2 - 8 were cut in the Ekofisk and Tor Formations in the interval 3051 m to 3280 m. No wire line fluid samples were taken

The well was suspended on 24 December 1969 as the Ekofisk Discovery well, the first economic petroleum discovery on the Norwegian Continental Shelf.

TESTING

One successful drill stem tests (DST 4) was conducted in open hole in the interval 3159 to 3195.5 m at the base of the Ekofisk Formation. It flowed 5.9 MMCFD (167069 Sm3) gas and 1071 BPD (170 Sm3) oil on a 34/64" choke. The GOR was reported as 5500 cu.ft./STB (980 Sm3/Sm3). The oil had an API gravity of 37.2 deg. The reservoir temperature was reported to be 265 deg F (129.4 deg C).

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 2/4-2