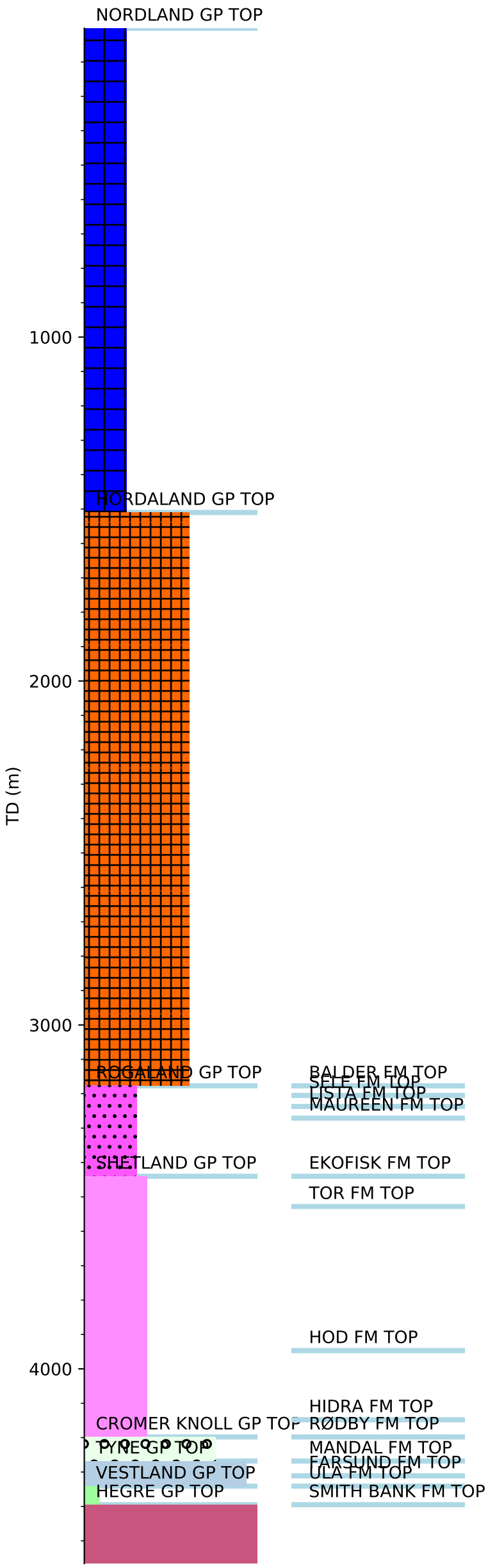
Groups

Formation Tops



Wellbore History

GENERAL

Well 7/11-10 S was designed to drill the 7/11-A structure on the Mime Field, on the eastern margin of the Central Graben. The structure is salt induced and consists of a northern, western, eastern and a southern compartment. Oil is proven in the northern compartment by the 7/11-5 well in the Late Jurassic Ula formation sandstone. The reservoir sandstone was deposited in a shallow marine environment mainly by storm episodes into an approximately 100 km long and 20 km wide "fairway". Shales of the Late Jurassic Farsund- and Mandal formations make up the cap-rock. The well was to be vertical down to 2002 m MSL and then kicked off towards the target with an angle of 33.28 degrees. The primary objective was a long term test production from the oil-bearing Ula formation of Area 1 in the northern compartment. Secondary objective was to improve the geological control, and coring was supposed to give good information about the silica cementation above and below the OWC. Shallow gas was indicated in the interval from 318 m - to 425 m MSL.

OPERATIONS AND RESULTS

Appraisal well 7/11-10 S was spudded with the semi-submersible installation Transocean 8 on 5 July 1990 and drilled to TD at 4566 m in the Triassic Smith Bank Formation. No shallow gas of importance, only background gas, was encountered while drilling. Gumbo problems were encountered in the upper part of the 17 1/2" hole, but hole conditions improved after increasing the mud weight. The well was kicked off at 2010 m in 40° direction, and the angle built to 35° at 2610 m. While pulling out, the bit came out with three cones lost. The string got stuck at 3740 m. Fishing operation was unsuccessful, and a cement plug was set above the fish. The hole was kicked off from the cement plug at 3550 m and sidetracked. No severe problems were experienced in the last part of the hole except from low penetration rate at times and some tight spots on the bit trips. The top hole was drilled with seawater and hi-vis pills down to 621 m, the 17 1/2" section was drilled with KCl/PHPA/PAC mud from 621 m to 1941 m, the 12 1/4" section from 1941 m to 4220 m was drilled oil based, and the final 8 1/2 section to TD was again drilled water based.

The average petrophysical results from The Ula Formation and uppermost Triassic in well 7/11-10S was comparable to the discovery well 7/11-5. A total of 27 meters of net pay was penetrated, with porosities ranging from 13% up to 21%. The entire analysed Jurassic interval (4340.5-4395.5 m /4010.25-4062.75 m TVDMSL) in well 7/11-10S was regarded as oil bearing. The deepest oil observed in the well was at 4388 m (4053.5 m TVDMSL), which was regarded as an ODT. The lowermost 5 meters did not contain hydrocarbons, probably due to the extremely tight nature of the rock. This tight interval might also have acted as a vertical barrier, preventing hydrocarbons migrating into the somewhat more permeable Triassic sandstones. Also well 7/11-5 contained this impermeable section.

No logs were run beneath 4493 m. Three cores were cut in the Ula Formation and uppermost Triassic, from 4350 to 4403 m. No fluid samples were obtained in the well bore

The well was suspended on 10 September 1990 as an oil appraisal well.

TESTING

The perforated interval for the test production was 4347 m through 4381 m (4016.6-4048.9 m TVDMSL). The long term production test was however to be performed in a re-entry.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7/11-10 S