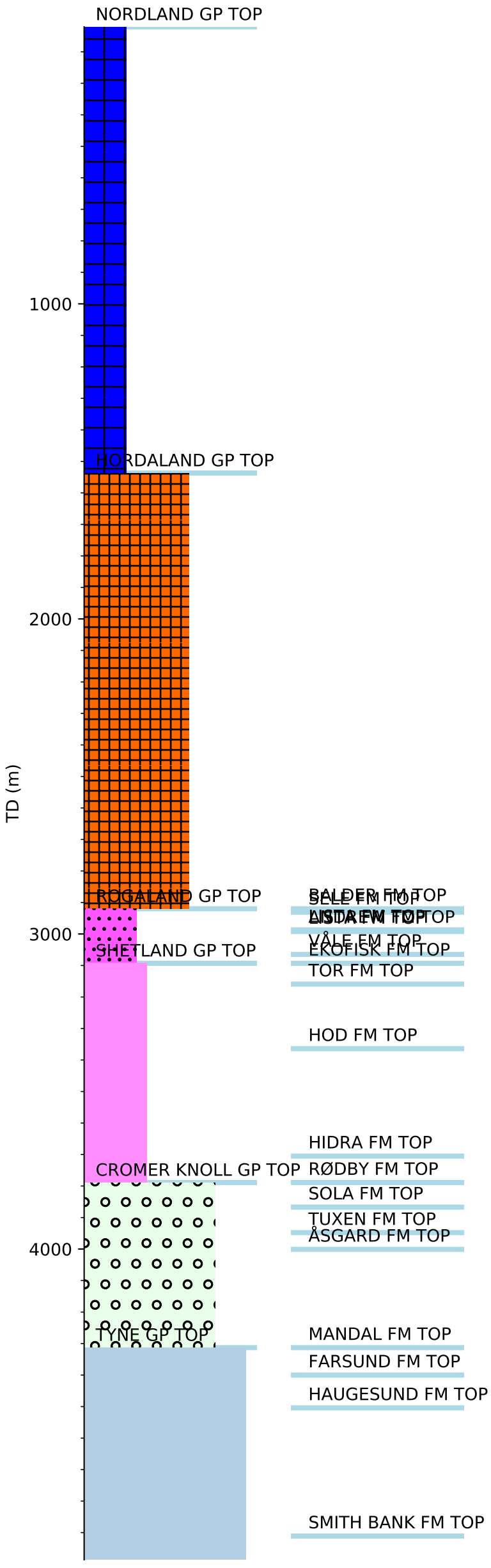
Groups

Formation Tops



Wellbore History

GENERAL

Well 1/9-7 was drilled on the Tommeliten Alpha structure on the south-western side of the Feda Graben of the North Sea, ca 1.5 km from the UK border. The main objective of well 1/9-7 was to explore the hydrocarbon potential of the Tommeliten Alpha prospect in the Jurassic level. Secondary objective was to appraise the Tommeliten Alpha Chalk discovery made by well 1/9-1 in 1976.

OPERATIONS AND RESULTS

Wildcat well 1/9-7 was spudded with the jack-up installation Mærsk Giant on 22 March 2003. The well was drilled to the TD of the 17 1/2" section at 3040 m by 21 April. Problems with losses at the 20" shoe at 1039 m were remediated by spotting cement at the shoe. The well was inadvertently sidetracked as 1/9-7 T2 while drilling out the cement on 27 April. Unable to re-enter the original borehole after drilling to 1215 m, the 1/9- 7 T2 sidetrack was cemented back to the 20" shoe. The well was then deliberately and successfully sidetracked from 1039 m as 1/9-7 T3 on 4 May 2003. The 17 1/2" hole was re-drilled to a TD of 3058 m and 14" casing set. From there the well was drilled without further significant problems to TD at 4986 m (4965 m TVD) in the Triassic Smith Bank Formation. The well was drilled with seawater/bentonite/CMC down to 1047 m, with Versavert OBM in from 1047 to 3058 m (Versavert was used also in the primary well track and the failed sidetrack), and with Versatherm HTHP mud, a mineral oil based mud, from 3058 m to TD.

Chalk of the Ekofisk Formation was encountered at 3093 m and top Tor Formation was encountered at 3159 m. Reservoir quality sands were not encountered at any level below the Base Cretaceous Unconformity, although an interval containing very fine sand and silt equivalent to the Oxfordian J50 Sand Unit in the UK well 30/19a-5, 8 km to the WNW, was encountered. The only significant hydrocarbons encountered were in the Ekofisk and Tor Formations in the upper portion of the Chalk Group where oil shows were observed. MDT sampling in Ekofisk proved a gas/condensate. Logs indicated hydrocarbon saturation down to ca 3195 m but no definite hydrocarbon contact was found.

Petrophysical analyses indicated some hydrocarbon saturation in a thin Miocene Sand Unit at 1675 m (1/9-7 depth) and a thin Andrew Formation sand in the Paleocene from 2989 m to 2992.5 m (1/9-7 T3 depth). None of these had oil shows. Shales in the Mandal Formation at 4315 - 4350 m had definite shows (hydrocarbon odour). However, the oil-based drilling fluids made shows identification difficult below 1047 m.

Two cores were cut with 100% recovery from 3104 to 3153 m in the Ekofisk Formation. During MDT operations across the Chalk Group, 5 down hole samples were retrieved from 3112 m in the Ekofisk Formation with an MDT dual-packer tool. Upon examination at surface, it was concluded that the samples contained what appeared to be single-phase retrograde gas condensate. From PVT studies it was concluded that the samples are 12-16 wt% contaminated with base-oil drilling mud, geochemical analyses by GC show that apart from the contamination in the range C12 - C20 the 1/9-7 MDT oil is very similar to the oil sampled from 1/9-1 side of the Tommeliten Alpha discovery.

The well was permanently abandoned on 2 August 2003. The well is classified as dry in the main Jurassic exploration target and is also a positive appraisal of the 1/9-1 Tommeliten Alpha Ekofisk/Tor Formation discovery.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 1/9-7