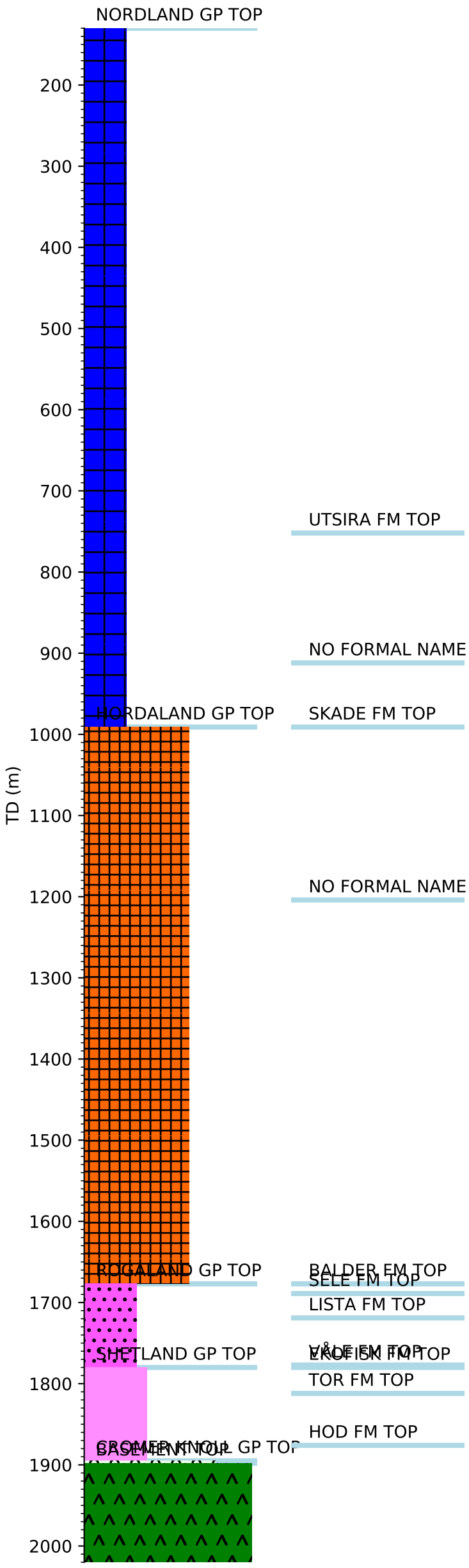
## Groups

## Formation Tops




## Wellbore History

GENERAL

Well 16/4-5 was drilled on the Luno High prospect located south of the Luno field on the southern Utsira High in the North Sea. The general objectives were to refine the resource potential of the Greater Luno Area and to increase the regional understanding of the sedimentary sequences and fractured basement facies across the Utsira High. The specific objective was to prove the presence of oil bearing sandstones in the Late Jurassic to Early Cretaceous sequence or in conglomerates in the Triassic to Middle Jurassic sequence. The well would test the Luno regional oil-water contact at 1940 m MSL or the alternative oil-water contact established in well 16/1-12, 1928 m MSL. In case of a discovery test production rates in the variable reservoir facies by means of one or more DSTs would be conducted. Planned depth was 2300 m RKB

OPERATIONS AND RESULTS

Wildcat well 16/4-5 was spudded with the semi-submersible installation Transocean Winner on 2 February 2010 and drilled to TD at 2020 m in pre-Devonian basement rock. This was 280 m shallower than planned because the prognosed reservoir conglomerates or fractured basement were not encountered. At TD in the 12 1/4" section at 1790 m large quantities of mechanical and stress-release cavings, thought to originate from the Lista and Sele Formations, were circulated out of the hole. Otherwise the were no mud losses or other hole problems in the well. A very slow ROP of approximately 2.5 m/hr was obtained in the 8 1/2" hole below the core point with an insert bit. This was due to the hard, granitic formation. The well was drilled with seawater and hi-vis pills down to 600 m and with Glydril KCl mud from 600 m to TD.

No Cretaceous or Late Jurassic age sandstones or Middle Jurassic to Triassic age conglomerates were encountered in the well. Well 16/4-5 proved oil shows in faulted/fractured granitic basement underlying red coloured marls of Hauterivian to Valanginian age. The granitic basement was highly fractured, as seen from the FMI log; however, analysis of the core showed that a large majority of these fractures were tightly cemented. Several fractures were open and contained traces of migrated hydrocarbons, mainly characterised by black tarry material, dry and flaky in some cases.

Two cores were cut in the interval 1896 m to 1925.7 m across BCU and into basement. A number of attempts to measure formation pressures and take fluid samples were made using a Schlumberger MDT tool, however, the formation proved too tight. No pressure results were obtained. One MDT fluid sample recovered from 2002.5 m was found to contain drilling fluid only; otherwise no fluid samples were taken.

The well was permanently abandoned on 7 March as a well with shows.

TESTING

The fractured granitic basement did not have reservoir characteristics, therefore the well was not production tested.

# LITHOSTRATIGRAPHY & HISTORY FOR WELL: 16/4-5