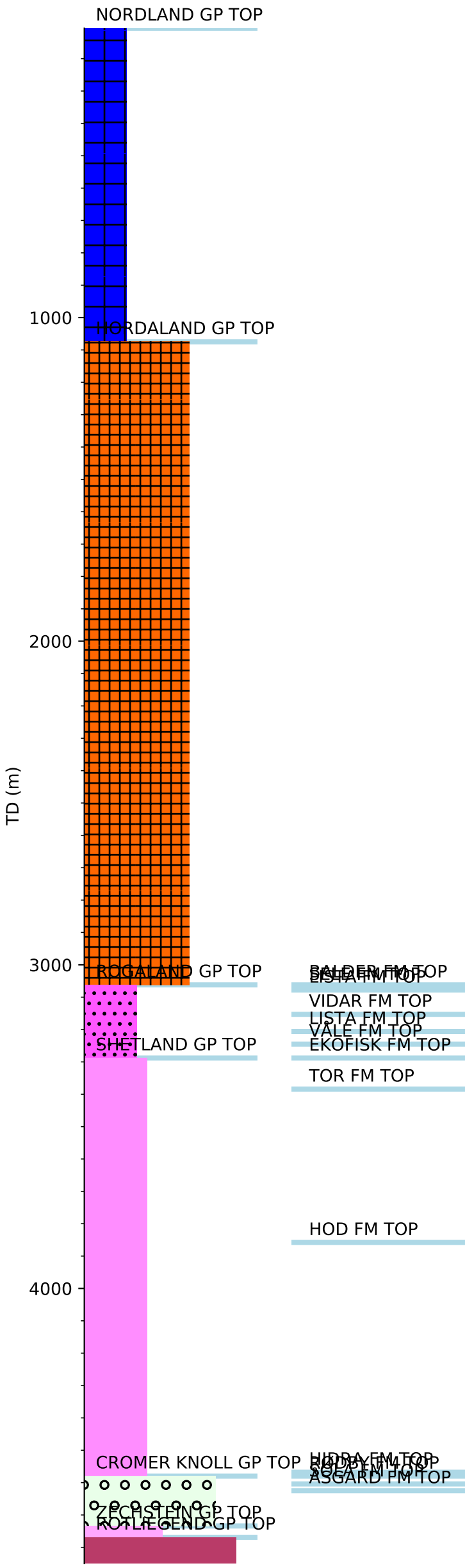
Groups

Formation Tops



Wellbore History

GENERAL

Well 1/3-5 was drilled on a NW-SE oriented fault block tilted towards the NW. The structure is located in the northern Permian basin, on the east side of Central Graben, extending into blocks 116, 211, and 2/4. The purpose of the well was to evaluate the hydrocarbon potential of the Rotliegendes Group sandstones.

OPERATIONS AND RESULTS

Wildcat well 1/3-5 was spudded with the 3-leg jack up installation Neddrill Trigon on 1 October 1984 and drilled to TD at 4850 m in the Permian Rotliegendes Group. After setting the 30" conductor a 14 3/4" pilot hole was drilled to 1195 m, before opening the hole to 26". Drilling to 2470 m the mud weight was raised from 1.33 g/cm3 to 1.70 g/cm3 due to high formation pressure. This resulted in tight hole during wiper trips, and high weight strain on the drill string, and also caused the 13 3/8" casing to be set somewhat higher than prognosed. Through the chalk sequence the hole seemed to be tight, and while tripping at 3523 m, the drill string got stuck with the bit at 3515 m. It was assumed that the tight interval was caused by one of the stabilizers between 3247 and 3267 m. The string was freed by pumping acid. A high pressure sand sequence in the interval 4363-4395 m, with pore pressure close to the last leak-off Test, resulted in the 7" liner being set 520 m higher than prognosed. The well was drilled with spud mud down to 1195 m, with KCl/polymer mud from 1195 m to 3000 m, from 3000 m the mud was lightly treated with lignosulphonate. Fifty bbl of pipelax with a mud/diesel ratio of 1:1 was added to the mud to free the stuck pipe at 3515 m. From 4122 m to TD the well was drilled with a polymer/sulphonated resin mud.

Traces of yellow direct fluorescence, mainly on fractures, with a moderate milky-white cut fluorescence were observed at the top of the Tor Formation and at several levels deeper down in the formation. Also near the base of the Hod Formation, a very weak and slow pale yellowish cut fluorescence was occasionally observed. Direct fluorescence was not detected. Petrophysical analysis supported that some zones in the lower Hod Formation (4369 m to 4448 m) could be marginally hydrocarbon bearing. The objective Rotliegendes sand came in at 4769 m. Results from permeability measurements indicated that the sand was water bearing and tight, although porosity readings from the core from this sand were surprisingly high. A water-bearing formation was supported also by low background gas readings and lack of shows while drilling through the interval.

One core was cut in the Rotliegendes Group sandstones from 4805 m - 4814 m. An FMT sample taken at 4387 m (Lower Hod Formation) recovered mud filtrate only. An FMT sample taken at 4770 m near the top of the Rotliegendes Group recovered mud filtrate, with no indications of hydrocarbons.

The well was permanently abandoned on 11 February 1985 as a dry well with shows.

TESTING

No drill stem test was performed in the well.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 1/3-5