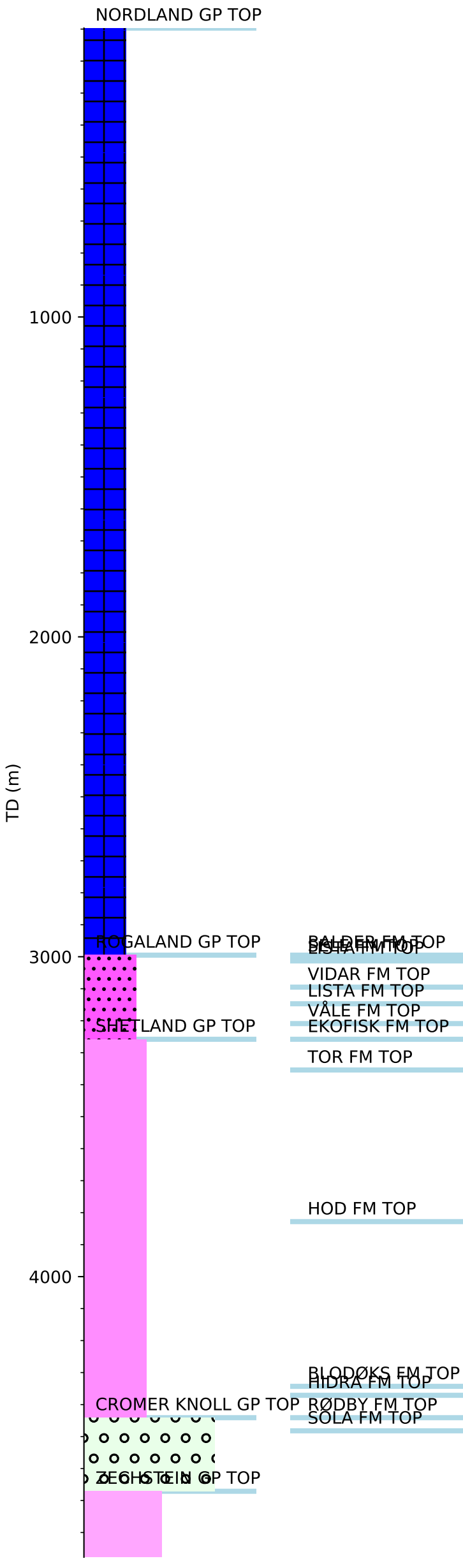
Groups

Formation Tops



Wellbore History

GENERAL

Well 1/3-1 was drilled on the crest of a salt-induced anticline on the Hidra High in the North Sea. The purpose of the well was to investigate Tertiary and Mesozoic sequences down to top salt.

The well is Type Well for the Våle, Hidra, Hod, and Tor Formations, and Reference Well for the Vidar, Ekofisk and Blodøks Formations.

OPERATIONS AND RESULTS

Well 1/3-1 was spudded with the four leg jack-up installation Orion on 6 July 1968 and drilled to TD at 4877 m in the Permian Zechstein Group. From the deviation survey it is seen that the well starts to deviate significantly at 4037 m (8 deg deviation), and at TD the deviation is 18 deg. This will correspond to a TVD RKB that is ca 25 m less than MD RKB.Several drilling problems occurred during the drilling operations of well 1/3-1. While drilling the 17 1/2" hole for the 20" casing, circulation losses started at 220 m (720') and became total at 238 m (781'). While drilling on with sea water, without returns, the pipe stuck. The lost circulation zone eventually had to be sealed off with a cement plug. In the Tertiary plastic clays the problems included tight hole conditions, bit balling, and difficulties in lowering the logging tools. The mud weight had to be raised from 10.8 ppg to 13.6 ppg to stabilize the hole. At 4131 m (13554') the bit twisted off, but was retrieved on the second fishing run. A hydrocarbon bearing zone was encountered at 4567 m (14984'). The mud became gas cut. At 4592 m (15064') the degasser was overloaded and the circulation lost, probably higher in the hole. A cement plug was needed to combat the lost circulation problems. It was then decided to set a 7" casing. Circulation was lost while running the casing, which had to be cemented in two stages. Drilling continued with a 5 7/8" bit. Around 4677 m (15346'), when drilling into salt, the penetration rate increased from 10 to 50 ft/hr. Further deepening to TD went without problems. The well was drilled water based.

Well 1/3-1 found no sand of any significance in the Tertiary section. An unexpectedly thick Danian/Late Cretaceous chalk section (Shetland Group) was penetrated from 3258 m to 4441 m. The underlying Cromer Knoll Group was found resting directly on Permian salt at 4671 m. Minor gas was confirmed by testing in the Tor Formation. No source rock section was identified in the well. Shows were reported in the interval from 2999 m to 3423 m as follows: direct and cut "faint" fluorescence were reported on sidewall cores from the interval 2999 to 3002 m; weak cut fluorescence was recorded on cuttings from 3039 m; strong cuttings fluorescence and moderate cut was recorded at 3357 m; "fair" - "soaked w/oil, giving yellowish-grn flu, but no cut" on the conventional core at 3405 to 3423 m

One core was cut from 11165 to 11232 ft (3403.1 to 3423.5 m). No wire line fluid samples were taken. A sea bed core (0 - 46 m from seabed) was taken for geotechnical purposes at the 1/3-1 location. Samples from this core are available at the NPD.

The well was permanently abandoned on 11 November 1968 as a minor gas discovery.

TESTING

Three Drill Stem Tests were conducted. They produced some fluids at very low rates:

DST 1 tested the interval 4583.6 - 4601.0 m in the Cromer Knoll Group and recovered a total of 0.74 bbl gas cut mud in 45 minutes, corresponding to a standard rate of 40 bbl (1133 Sm3) gas/day.

DST 2 tested the interval 4563.5 - 4581.8 m in the Cromer knoll Group and recovered a total of 18 bbl of gas cut mud with traces of condensate and slugs of gas in 140 minutes. This corresponds to a standard rate of [illegible] gas/day.

DST 3 tested the interval 3355.2 - 3359.8 m in the Tor Formation and recovered a total of 30 bbl of gas cut mud and slugs of gas in 45 minutes. This corresponds to a standard rate of 1000 bbl (28317 Sm3) gas/day.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 1/3-1