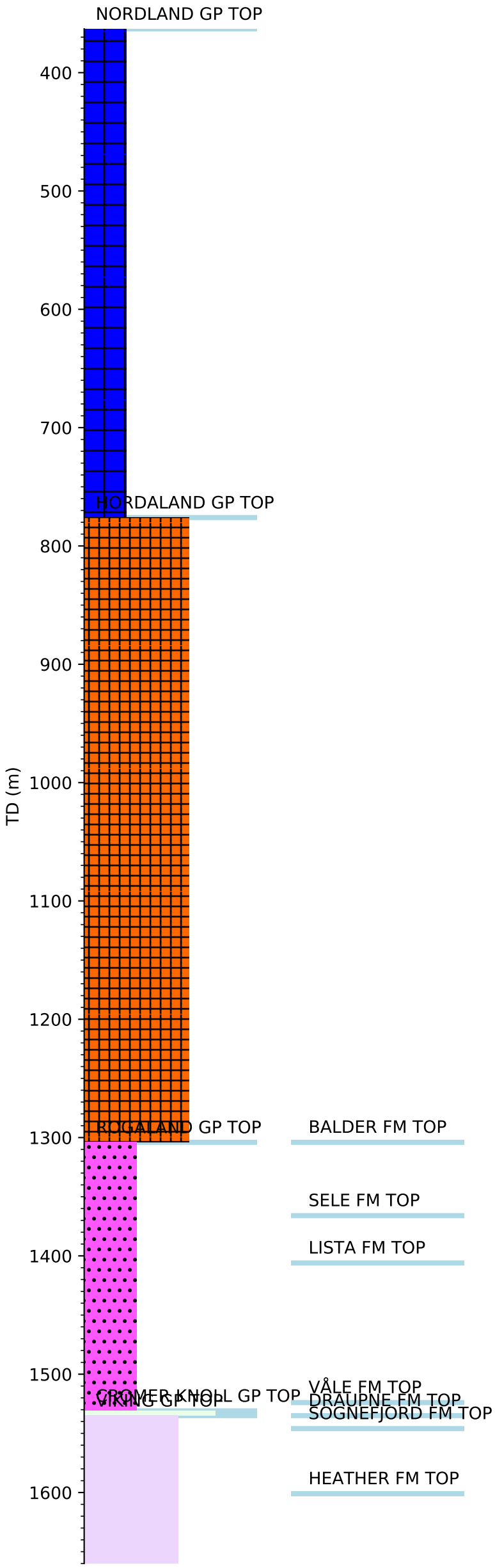
Groups

Formation Tops



Wellbore History

GENERAL

Well 31/2-7 was drilled in the Troll West oil province in the Northern North Sea. The primary objective was to appraise the oil accumulation in the area west of well 31/2-4 in the Troll Field.

OPERATIONS AND RESULTS

Well 31/2-7 was spudded with the semi-submersible installation Borgny Dolphin on 22 April 1982 and drilled to TD at 1660 m in the Late Jurassic Heather Formation. No significant problems were encountered during operations. Tight spots were encountered in the 17 1/2" section. The well was drilled with seawater and hi-vis pills down to 455, with seawater/gel/CMC/Drispac from 455 m to 825 m, with KCl/polymer mud from 825 m to 1517 m, and with KCl/polymer/gel/lingo mud from 1517 m to TD.

The well penetrated 11 m f Late Jurassic Draupne shale at 1535 m before entering the Sognefjord Formation reservoir sands at 1546 m. The Heather Formation was encountered at 1601 m. The Sognefjord Formation was hydrocarbon bearing with a 20.5 m gas column from 1545.5 - 1566 m and a 27.5 m oil column from 1566 to 1593.5 m. The gas reservoir consisted of alternating micaceous, bioturbated fine to medium grained sandstones and cross laminated, massive fine to coarse grained sandstones. The upper part of the oil reservoir (down to 1586 m) was of the same quality as the gas reservoir. Below 1586 m the sandstones were very fine to medium grained with high mica content. Weak shows (fluorescence and cut) were recorded on cores down to 1635 m.

Six fibreglass sleeve cores were taken from 1547.0 m to 1635.0 m in the 8 1/2" section. Thus 88 m of core were cut of which 72.25 m (82%) was recovered. In order to verify the higher than expected GOC several unsuccessful (due to probe plugging) attempts were made to obtain RFT fluid samples at around 1570 m. Eventually one of the RFT chambers was filled at 1568 m. After a few more attempts the other chamber was filled at 1566.5 m. At surface the contents of both chambers were checked and found to be 29 API oil. This proved a 27.5 m oil column in the well and thus the existence of oil above 1547 m SS (1572 m), which had been interpreted as the GOC in all previous wells.

The well was permanently abandoned on 14 June 1982 as an oil and gas appraisal.

TESTING

The well was gravel packed and acidized before testing. A production test was carried out over the external gravel packed interval 1584 - 1590.5 m. The objectives were to investigate inflow performance and sand control, obtain representative fluid samples for PVT analyses, and to evaluate well coning performance. At maximum rate in the 92 hour long main flow the well flowed 1113 Sm3 oil/day on a 180/64" choke. The GOR was between 53 and 45 Sm3/Sm3, the oil density was 0.89 g/cm3 (27.5 deg API), and the gas gravity was 0.640. Maximum down-hole temperature recorded was 67.8 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 31/2-7