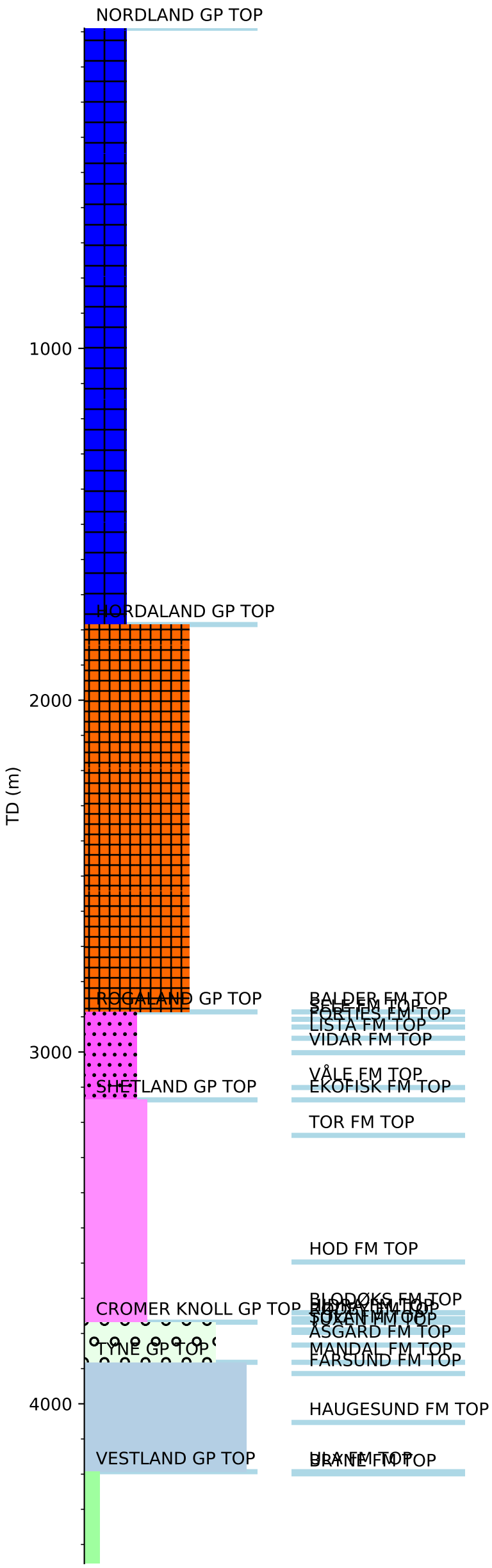
Groups

Formation Tops



Wellbore History

GENERAL

Well 2/1-5 was drilled on the Cod Terrace of the Central Graben in the southern North Sea. The primary objective was test a Late Jurassic sandstone prospect on the south side of a large, central salt culmination in block 2/1. The prospect was developed by analogy with the 2/1-3 oil discovery (Gyda) on the north-western slope of the same salt high. There, the reservoir is a 60 to 90 m thick sand within the Farsund formation, with closure formed primarily by pinch out/truncation beneath the Mandal Formation on lapping on the central salt high. Secondary objectives were possible deeper reservoirs such as the Ula and Bryne Formations and the Triassic down to top salt.

OPERATIONS AND RESULTS

Wildcat well 2/1-5 was spudded with the semi-submersible installation Sedco 707 on 13 November 1982 and drilled to TD at 4454 m. In the Cretaceous sequence the string got stuck and the well had to be sidetracked from 2882 m. After a drilling break at 4186 m an oil kick occurred with 21.5 m influx and oil appearing in the mud. RFT measurements in sandstone units below the oil kick showed pore pressures on a gradient equivalent to a mud weight of 2.10 g/cm. This gave little margin for safe onward drilling to Top Salt and the well was terminated in dark, carbonaceous mudstone of uncertain, possibly Early Jurassic age. The well was drilled with seawater/gel down to 635 m, with gypsum/lignosulfonate mud from 635 m to 3830 m, and with Lignosulphonate/lignite mud from 3830 m to TD.

Well 2/1-5 reached the Base Cretaceous Unconformity and the "Hot shale" at 3882 m as predicted. Coring was initiated when traces of sand were observed near the predicted "top reservoir", but only dark, carbonaceous mudstone/siltstone was recovered. In total, 300 metres of mudstone/siltstone were then drilled without any clear trace of the expected equivalent of the 2/1-3 reservoir sandstone. Then, at 4193 m a porous, highly over pressured sandstone unit was penetrated, causing an oil kick and creating new hope for the prospect. However, the thickness of this oil sand was only 6 m, rendering it uneconomic as a single productive reservoir zone. The sand is classified as Ula formation. Several thin bands of sandstones occur within the mudstone sequence below the "kick sand", but these were all well cemented and thus unproductive. Oil shows were seen in sidewall cores in these bands of cemented sandstone down to as deep as 4300 m.

One core was cut from 3929.0 to 3946.3 m in the Farsund Formation. The RFT tool was run on wire line for pressure sampling, but no fluid samples were taken.

The well was permanently abandoned on 5 April 1983 as a minor oil discovery.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 2/1-5