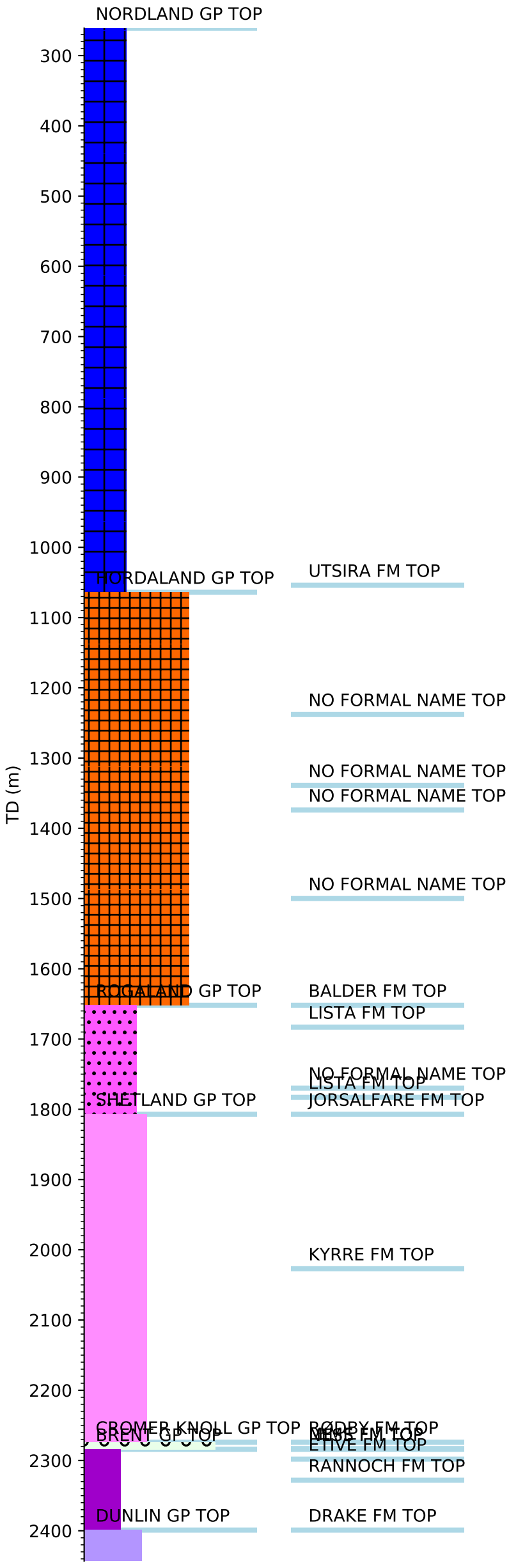
Groups

Formation Tops



Wellbore History

GENERAL

Well 34/7-18 is located on the Vigdis Field on Tampen Spur in the Northern North Sea. It was designed to drill and test a Jurassic Prospect (Segment IV of the C Plus structure), between the Snorre and Tordis Fields. The well was drilled in a high position on a gently dipping structure where the top of the Brent Group is eroded. The primary objective was to test the presence, reservoir quality and fluid contacts in the prospect. A secondary objective was to test the pressure regimes in the Jurassic sequence, including possible depletion associated with pressure communication, previously identified in the nearby Tordis Field. A boulder bed was expected at 303 m, and shallow gas could occur at 394 m and 546 m.

OPERATIONS AND RESULTS

Wildcat well 34/7-18 was spudded with the semi-submersible installation West Alpha on 20 July 1991 and drilled to TD at 2443 m in the Early Jurassic Drake Formation. Problems with retrieving core no 2 led to 4 days lost while fishing. During plug and abandon the cut and pull tool twisted off and 9 x 8" DC and 7 x 5" HWDP was left on seabed. Three days were lost while clearing the seabed and cutting the casing and retrieving the well head, which was eventually retrieved using explosives. Shallow gas was encountered in the pilot hole and a boulder bed was indicated from drilling parameters at 342 m. The well was drilled with spud mud down to 1115 m, and with KCl mud from 1115 m to TD.

In the Nordland and Hordaland Groups, the well penetrated mainly claystones with relatively minor sandstone intervals. A Paleocene oil discovery was made, and two cores were cut in the Lista Formation, Rogaland Group. These were cut in the interval 1774 -1782 m, of which 6.3 m were recovered. RFT pressure measurements and fluid sampling, the latter without success, were carried out in addition to a drill stem test.

The top of the Brent Group reservoir was penetrated at 2284 m which was 20 m shallower than prognosed. The Jurassic section comprised an eroded Middle Jurassic Brent Group and the Early Jurassic Dunlin Group. A total of 3 cores were cut in the Brent Group between 2285 and 2306 m, with a recovery of 20.5 m. The upper part of a sandstone interpreted to be a Ness Formation sandstone (2284 - 2290 m) had traces of oil with a calculated oil saturation up to 25% in the best zones. No oil gradient and hence no OWC could be established from the pressure gradient analysis. Small amounts (40 - 300 ml) of oil were recovered in RFT samples from 2284.5 and 2284.6 m.

Apart from the zones with live oil minor shows were recorded in sand layers in the interval 1375 to 1585 m in the Hordaland Group and in siltstone laminae in the interval 2120 to 2250 m in the Shetland Group. No shows were recorded below 2288.5 m.

The pressure gradient of the Brent Group showed the same depletion as observed in well 34/7-17A, indicating pressure communication in the Lower Brent between the Tordis Field, well 34/7-17A and well 34/7-18.

The well was permanently abandoned on 17 September 19921 as a minor oil discovery.

TESTING

One DST test was performed in the interval 1770 - 1783.5 m in an intra-Lista Formation Sandstone. The maximum oil rate was 130 Sm3/day. Due to sand and clay plugging, flow was sluggish and reliable rates were not obtained. The well test summary reports 46 Sm3oil/day as a reference rate, measured during the main flow through a 7.9 mm choke. A gas rate of ca 9000 Sm3 /day was measured at the same time. Maximum down hole temperature measured in the test was 60.9 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 34/7-18