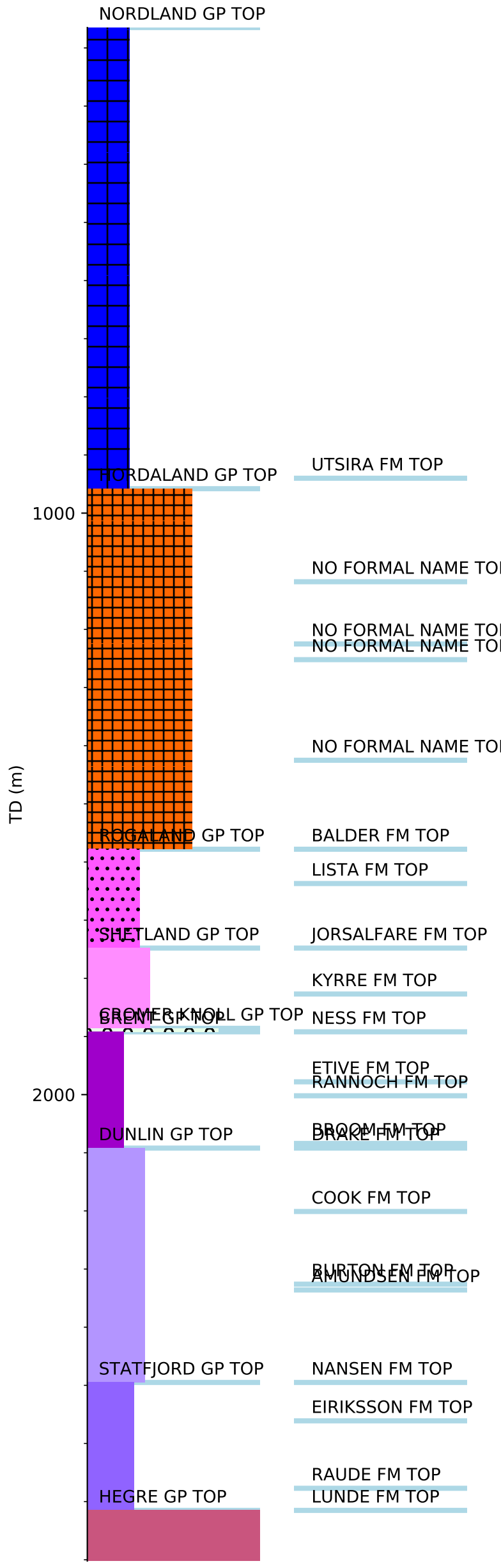
Groups

Formation Tops



Wellbore History

GENERAL

Well 34/10-3 was the second well drilled in the Delta closure in block 34/10 in the Northern North Sea. In the first well, 34/10-1, hydrocarbons were tested and proven to be present throughout the Brent sand. The primary objective of the well 34/10-3 was to test sandstones of Middle Jurassic age. Secondary objectives were sandstones of Early Jurassic and Late Triassic age.

OPERATIONS AND RESULTS

Well was spudded with the semi-submersible installation Norskald on 14 March 1979 and drilled to TD at 2802 m. When coring for core no 10 the core jammed at 2512.5 m and the core head matrix was left in the hole. Fishing commenced for 3 and a half day until most of it was recovered. Otherwise the operation proceeded without any significant problem. The well was drilled with seawater/gel down to 587 m and with Chrome Lignosulphonate mud from 587 m to TD.

Oil shows (yellow fluorescence, cut and "dead oil stain" were recorded at 1410 - 1470 m at the base of the Hordaland Group. Stronger shows were seen from 1814 m in the Shetland Group m and down to top Brent reservoir. Oil in the mud was observed at 1814 m. The Middle Jurassic Brent Group was encountered at 1892 m, directly underlying a thin Albian-Aptian age Cromer Knoll section. The Brent Group was oil bearing down to the oil water contact at 1972 m. Oil shows on cores continued down to 1997 m.

Eight cores were cut in succession from 1904 m to 2025 m in the Brent Group, and one core was cut from 2467 m to 2478.8 m in the Early Jurassic Amundsen Formation. No wire line fluid samples were taken due to problems with sand plugging.

The well was suspended on 7 June 1979 as an oil appraisal well.

TESTING

Three drill stem tests were conducted in the Brent Group, one water test and two oil tests. Sand production was a problem in the tests.

DST 1 perforated the interval 1990 to 1995 in the water zone. It produced 420 m3 water/day through a 20/64" choke. The water density was 1.0294 g/cm3. The bottom hole maximum temperature was 75.5 deg C, measured at 1973 m.

DST 2 perforated the interval 1935 to 1940 m. It produced 450 Sm3 oil and 33000 Sm3 gad /day through two parallel chokes of diameters 20/64" and 10 /64". The GOR was 70 Sm3/Sm3, the oil gravity was 29.2 deg API, and the gas gravity was 0.656 (air = 1). The bottom hole maximum temperature was 72 deg C, measured at 1915 m.

DST 3 perforated the interval 1895 to 1900 m. It produced 103 Sm3 oil/day. The gas rate was not recorded. The oil gravity was 29 deg API. The bottom hole maximum temperature was 69.5 deg C, measured at 1871 m.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 34/10-3