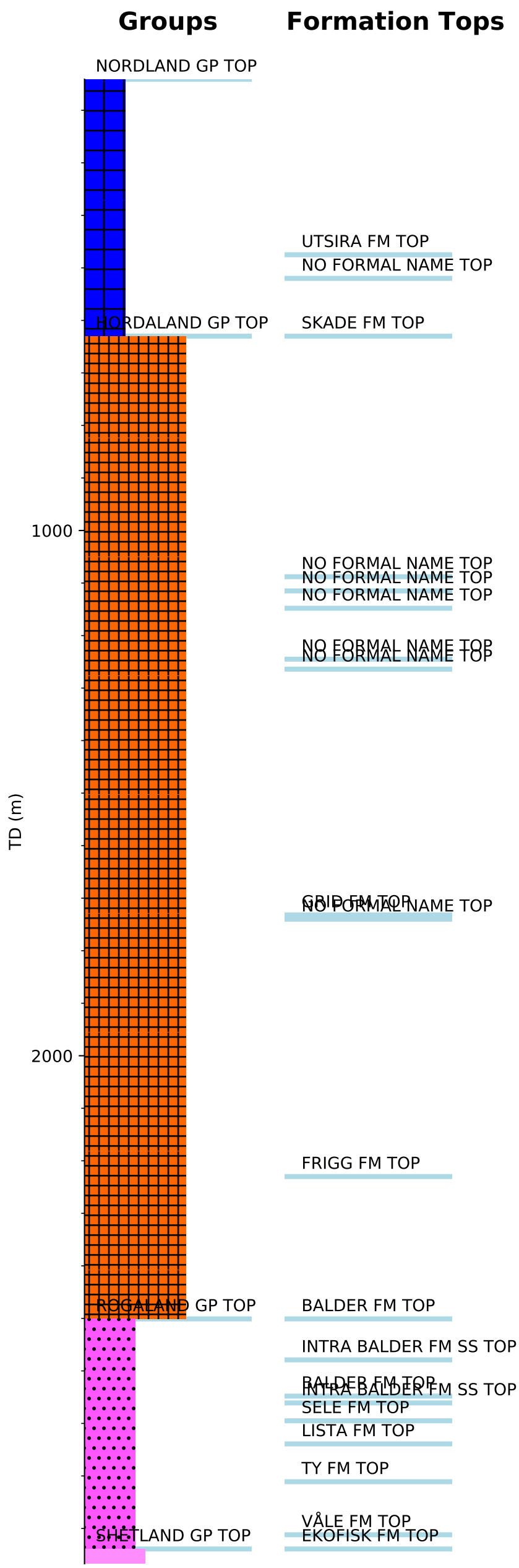

Wellbore History

GENERAL

Well 25/2-10 S was designed to drill the Gamma Structure, one of the Frigg satellites, east of the East Frigg Beta Structure. The primary objective of the well was to test whether the gamma structure is an eastward extension of the East Frigg Beta structure. The main target was the Lower Eocene Frigg Formation; secondary targets were the Balder and Ekofisk Formations. In addition a possible gas accumulation was expected in a thin sand body of late Oligocene age.

Shallow gas indications at 256 m MSL, and a disturbed zone on the seismic from seabed to the Frigg Formation demanded a deviated well in order to reach the Frigg Formation at its highest structural position.

OPERATIONS AND RESULTS

Wildcat well 25/2-10 S was spudded 2 December 1985 by Sonat Offshore A/S semi-submersible rig Henry Goodrich. The well terminated in Limestone of the Early Paleocene Ekofisk Formation at a depth of 2967 m (2643 m TVD RKB).

Due to shallow gas indication on the chosen locality, the well was spudded 1100 m north and 200 m east of the TD position. Drilling proceeded without significant problems down to 1049 m here mud was lost.

An Oligocene sand, now re-dataed to be of Lower Miocene age, was confirmed in the interval 1115 m to 1148.5 m (1006.5 m to 1031 m TVD RKB) with gas from top sand at 1115 m down to a GOW at 1136.5 m (1006.5 m to 1022.5 m TVD RKB). From 1095 m to 1150 m (992 m to 1030 m TVD RKB) strong yellowish green to yellow ocher direct fluorescence and milky yellow cut were observed on cuttings and SWC. Pressure measurements suggest an oil gradient of ca 0.72 g/cc below the gas with a tentative OWC at 1162 m (1041.5 m TVD RKB). Top Frigg Formation came in at 2230 m (1943 m TVD RKB) with minor amounts of oil and gas. The GOC in the Frigg reservoir was found at 2243.6 m (1956 m TVD RKB) and the OWC at 2259.6 m (1971 m TVD RKB). Brown oil staining was reported on the cores from 2243.5 m to 2257 m. In the Frigg Formation, direct fluorescence shows were reported from 2230 m to 2280 m. No fluorescence was observed below 2280 m. The average reservoir temperatures were estimated to 30.6deg C in the Lower Miocene reservoir and 58.0deg C in the Frigg reservoir.

Five cores were cut in the interval 2236 m to 2275 m. Two cores were cut down to 2311 m, and altogether 9 cores were cut in this well. Wire line RFT samples were taken in Lower Miocene at 1129 m (gas) and in the Frigg Formation at 2234.6 m (gas and mud filtrate), and at 2252.5 m (oil and mud filtrate). Testing of the two hydrocarbon bearing zones was not carried out as the NPD consent for use of the rig was withdrawn. During abandonment operation the BOP was lost 8 m above wellhead and caused severe damage such that the well was lost. The well was suspended 19 March 1986 as an oil and gas discovery.

The well was re-entered (25/2-10 SR) with the semi-submersible installation Nortrym on 16 September 1987. The only operations performed in the re-entry were plugging and permanent abandonment. The well was completed 22 September 1987 as an oil and gas discovery.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 25/2-10 S