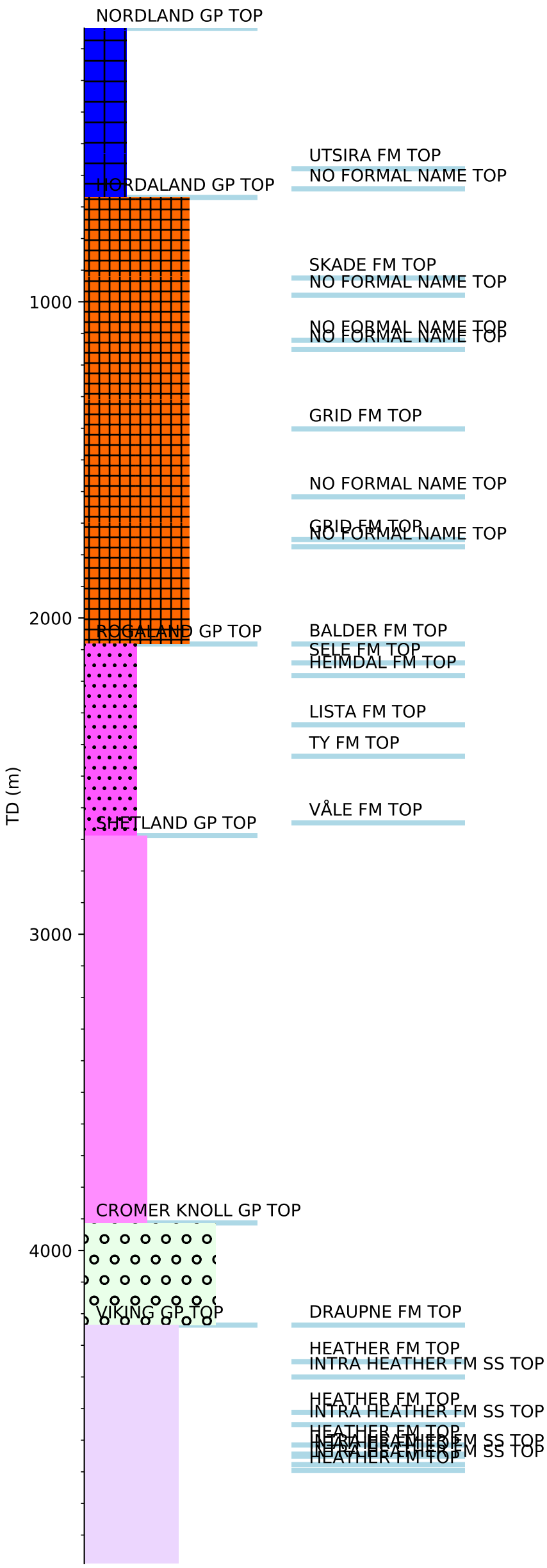

Wellbore History

GENERAL

Well 15/3-2 R is a re-entry of well 15/3-2 in the Vilje sub-basin structural element of the south Viking Graben of the North Sea. The primary well 15/3-2 was drilled by "Polyglomar Driller", which was equipped with 10.000 psi WP 18 3/4" BOP-stack. This well was suspended on 24 January 1977 with 9 5/8" casing set at 4248 m, in the Late Jurassic Draupne Formation. The re-entry was drilled with the Pentagone 84, equipped with a 15000 psi WPI 11" BOP stack, necessary to drill and test high-pressure Jurassic reservoirs. The objective of well 15/3-2 R was to test the Jurassic reservoirs, including the Dogger - Lias sections.

OPERATIONS AND RESULTS

Well 15/3-2 was re-entered with the semi-submersible installation Pentagone 84 on 26 July 1977 after some initial problem with connecting to the wellhead on the sea floor. An 8 11/32" hole was drilled down to 4990 m when the drill string parted. In spite of an extensive fishing operation, the fish had to be left in hole. Top fish is at 4742 m. A sidetracking operation was performed trying to bypass the fish, but also this operation failed and 4990 became TD of the well. The well was drilled water based with LFC-LC mud from re-entry point to TD.

The Draupne Formation extended from 4236 m down to 4352 m, making up a total of 116 m. Geochemical analyses proved TOC from 3 to 7 %wt and vitrinite reflectance analyses indicated middle oil window maturity (%Ro = 0.75). Four Intra Heather Formation sandstone reservoirs were drilled in the Jurassic section, varying in gross thickness from 15 to 112 m. According to logs the two upper ones, 112 and 64 m thick, were hydrocarbon-bearing, but with bad characteristics (porosity destruction by silicification) and no tests were successful. Shows during drilling were recorded throughout the Jurassic: low levels of C1 to C4 gas in mud, and fluorescence (direct and cut) on cuttings and cores. Gas was observed bubbling and seeping from all the cores. Because of the premature stop the Brent to Statfjord (Dogger to Early Jurassic) sedimentary section was not reached. As no electric logs were run below 4742 m the lithostratigraphy is poorly defined in the bottom part of the well. However, it is likely that TD was set in Heather Formation shale, and it is possible that the Dogger section (Brent Group) is very close to the TD (J4 horizon was prognosed at 5000/5100 m).

Four cores were cut in the intra Heather Formation Sandstones: cores 1 and 2 from 4404 to 4409 m, core 3 from 4565 to 4574 m, and core 4 from 4656 to 4662 m. 26 RFTs were attempted in the three upper sandstone bodies. All were either dry or they failed. Only two RFTs, at 4401 and 4401.4 m, were stabilized and indicated an equivalent density of 1.73. The well was permanently abandoned on 27 November 1977 as a well with strong shows.

TESTING

A 7" liner was set from 4101 m to 4665 m. Three DST-runs were carried out, all misruns due to mechanical failure of the PCT-tool.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 15/3-2 R