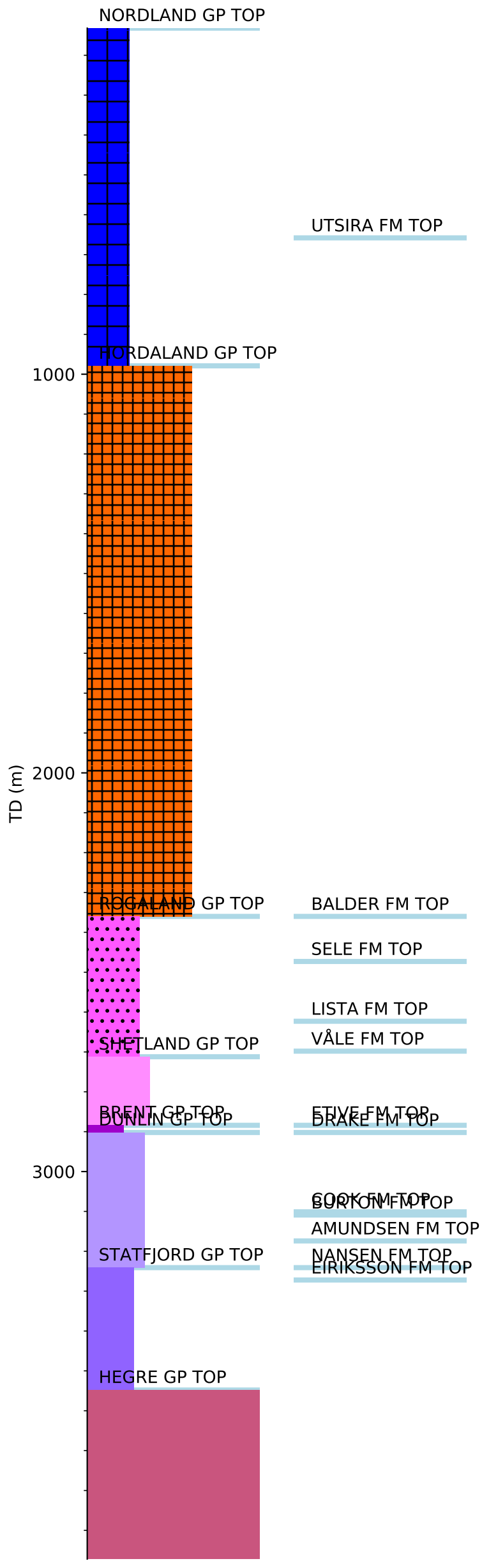

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 30/6-15

Wellbore History

GENERAL

Well 30/6-15 was drilled on the Gamma North structure west of the Oseberg Alpha structure. Gamma North is a NNW-SSE trending fault block down-faulted to the adjacent Alpha structure. The primary objective was to find hydrocarbon accumulations in the Statfjord Group. The secondary objective was to test the hydrocarbon potential in the Cook Formation. The total depth of the well was planned ca 270 m into the Triassic at a depth of ca 3950 m, corresponding to ca 3200 m TVD.

OPERATIONS AND RESULTS

Wildcat well 30/6-15was spudded with the semi-submersible installation Treasure Seeker on 2 May 1984 and drilled deviated to TD at 3972 m (3200 m TVD) at a position ca 2180 meters west of the surface position. Operations suffered from comparatively much down time due to hole problems and equipment repairs. The 8 3/8" and 6" sections in particular suffered hole problems and difficult logging. The well was drilled with spud mud down to 195 m, with gel/sea water from 195 m to 617 m, with SafeMul oil based mud from 617 m to 3005 m, and with NaCl/polymer mud from 3005 m to TD.

The Etive Formation (2884 - 2902 m, 2358 - 2372 m TVD) truncated by Cretaceous strata was found water bearing.

No Cook Formation reservoir was encountered. The Statfjord Formation (3241 - 3548 m, 2641.5 -2878.5 m TVD) sandstones were found gas bearing down to 3313 m (2697 m TVD), and oil bearing down to 3348 m (2723.5 m TVD). An oil/water transition zone is seen down to 3359 m MD (2732 m TVD). The lithology of the hydrocarbon bearing interval was predominantly sandstones with some interbeds of claystones/shales. Net pay in the gas zone was calculated on logs to 67.4 m giving a net to gross ratio of 0.94. Net pay in the oil zone was 31.9 m giving a net to gross of 0.91.

Hydrocarbon shows, rated as poor to locally fair, were reported from the Cretaceous limestones and on sandstone stringers in the Dunlin Group and in the Triassic.

Eight conventional cores were cut in the Statfjord Formation from 3254 m (2652 m TVD) down to 3398.5 m (2762 m TVD). Five sets of segregated samples were taken. Sample 1 was taken at 3283.5 m in the gas zone, samples 2 and 3 at 3322 m in the oil zone, and samples 4 and 5 were taken in the transition zone at 3353 m and 3355.5 m respectively.

The well was permanently abandoned on 5 September 1984 as an oil and gas discovery.

TESTING

Three Drill stem tests (DST) were performed in the Statfjord Formation.

DST no. 1 (3351.5 - 3354.5 m, 2726.2 - 2728.5 m TVD) tested the oil/water transition zone. The well produced 150 m3 water and 43 Sm3 oil /day through a 20/64" choke. The oil production rate increased through the test. The well also produced 1% CO2 and nil H2S. The wellhead pressure (WHP) was 46.3 bars and the bottom hole temperature (BHT) was 107 deg C.

DST no. 2 (3323 -3330 m, 2704.4 - 2710 m TVD) tested the oil zone, and produced 536.6 Sm3 oil and 72200 Sm3 gas /day through a 28/64" choke. The GOR was 134.6 Sm3 /Sm3, the oil gravity was 37 deg API and the gas gravity was 0.66 (Air = 1). The WHP was 141.4 bars and the BHT was 104.8 deg C. 1% of C02 was produced and nil H2S. A second main flow produced 1033.5 Sm3 oil /day through a 44/64" choke. In this flow the gas rate was not measured due to malfunctioning measuring device.

DST no. 3 (3250 -3265 m, 2649 - 2660.3 m TVD) was a gas test and produced 974100 Sm3 gas and 249.6 Sm3 condensate /day through a 64/64" choke. The gas/condensate ratio was 3922 Sm3/Sm3, the oil gravity was 54.7 deg API and the gas gravity was 0.68 (Air =1). The WHP was measured at 196.5 bars (2850 PSIA) and the BHT was 104.2 deg C. The test also produced 0.9 % CO2, but no measurable H2S.