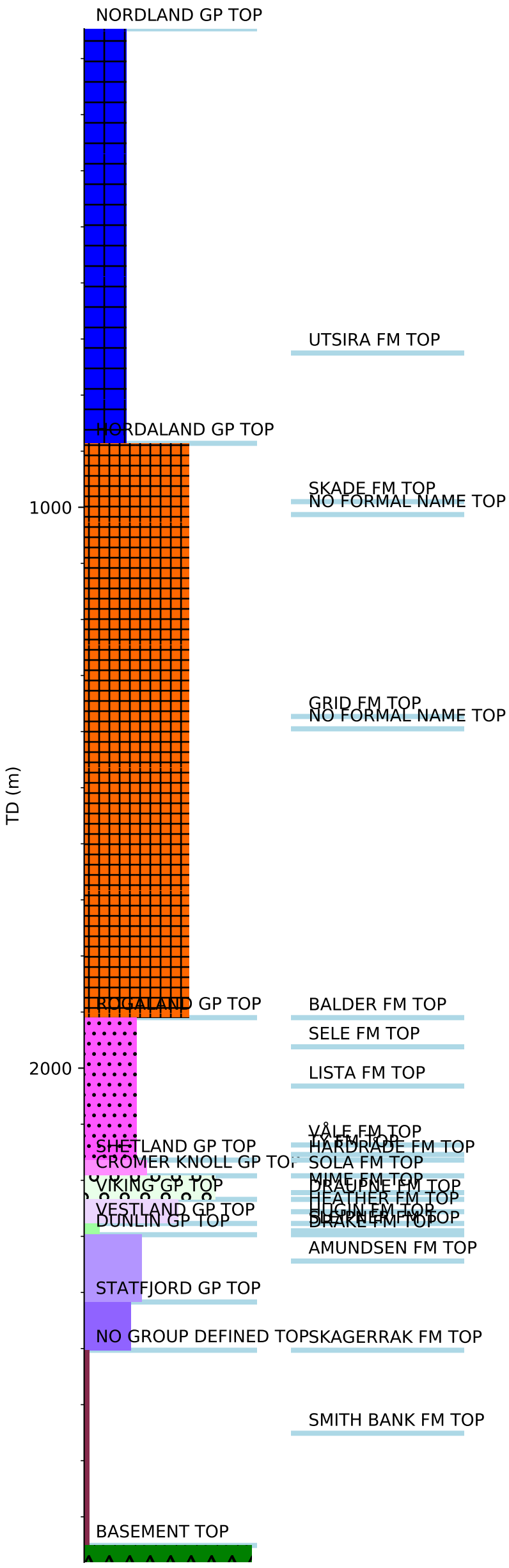
Groups

Formation Tops



Wellbore History

GENERAL

Well 25/6-1 was drilled on the northeastern part of the Utsira High. The main objective of the well was to test for hydrocarbons in a prospect west of the main fault in the southern part of the block. Primary targets were the Middle Jurassic reservoir sandstone belonging to the Vestland Group, which is partly eroded in this area, and the Early Jurassic Statfjord Formation sandstone. Secondary objective was the Early Tertiary sandstone. The total depth target was to drill through a strong seismic reflector between 2.5 and 2.6 second TWT. Shallow gas was expected at 282 to 344 m and 395 m.

OPERATIONS AND RESULTS

Wildcat well 25/6-1 was spudded 18 December 1985 by Wilh. Wilhelmsen's Offshore Services semi-submersible installation Treasure Saga, and completed 3 February 1986 at a depth of 2881, 30 m into rocks of probably Early Palaeozoic/Pre-Cambrian age. The well was drilled with seawater and hi-vis pills down to 260 m, with bentonite gel mud from 260 m to 1028 m, with gypsum/polymer mud fro 1028 m to 2195 m, and with bentonite gel / polymer mud from 2195 m to TD. No shallow gas was encountered.

The Quaternary/Tertiary sequence was 2017 m thick, and consisted of the Nordland, Hordaland, and Rogaland Groups. The Nordland Group was marine claystone with sands frequently developed, especially in the lower part, with 163 m of the sandy Utsira Formation. The Hordaland Group was clay/claystone with some thin sand units. Slightly tuffaceous claystone and a lower sand/marl/ claystone sequence were the main lithologies of the Rogaland Group. A 65.5 m thick Cretaceous sequence represented by Shetland and Cromer Knoll Groups was penetrated. The main lithology was chalky limestone, calcareous claystone grading to marl and minor sand.

The Jurassic sediments represented by the Viking, Vestland, and Dunlin Groups and the Statfjord Formation were encountered at 2233.5 m. Top Vestland Group was at 2277 m and top Statfjord Formation was at 2417 m. The Jurassic sequence was 269.5 m thick and consisted of Upper Jurassic shale, Middle Jurassic sandstones and alternating sandstones and silty claystone in the lower part. A 348 metres thick Triassic sequence represented by the Skagerrak and Smith Bank Formations was penetrated. The sequence consisted of shale/siltstone. The TD target seismic reflector was penetrated at the basement's upper surface.

The upper part of the Vestland Group was found oil bearing with an OWC at 2282.5 m. The Statfjord Formation was found water bearing. Gas readings were mostly between 0% and 0.2% throughout the well. Between 2195 - 2289 m the average gas level increased to 0.4%, and the gas consisted of Cl, C2, C3, iC4 and nC4 from approx. 2236 m. A maximum of 4.27% at 2278 m was recorded, consisting of 12549 ppm C1, 1169 ppm C2, 1651 ppm C3, 267 ppm iC4 and 511 ppm nC4. From 2300 - 2450 m the average gas was 0.1% and consisted of C1-C3. From 2450 - 2881 m, gas values fell from 0.05% to 0.00% and only C1 was recorded. Oil show was observed within loose sandstones from 2278 - 2288.5 m. The show was characterized by a fair-good petroleum odour, with very light brown oil staining of the grains. The fluorescence was weak pale yellow, with a slightly streaming milky (crush) cut, occasionally leaving a white residue upon evaporation. Below 2289 m all oil shows disappeared.

Three segregated samples were recovered with the FMT wire line tool, two of these (2279.8 m and 2283.2 m) from the oil zone and one from 2285 m below OWC. Two conventional cores were cut, core one from 2299 m to 2300 m, and core two from 2300 m and 2309.7 m.

The well was permanently abandoned as an oil discovery.

TESTING

One DST was performed in the interval 2276.7 m to 2279.7 m. The main flow period had duration of 22 hours. The average production rate was 298 Sm3 /day with a wellhead pressure of 96 bar. The gas-oil ratio was 130 Sm3 /Sm3 at separator conditions of 43º C and 19.5 bar. The dead oil density was 725 kg/m3 and the specific gas gravity was 0.88 (air=l). Three stage flash to standard condition PVT analysis of reservoir fluid collected during the production test, gave an oil formation volume factor of 1.92 Rm3 /Sm3, a gas to oil ratio of 232.2 Sm3 /Sm3 and a stock tank oil density of 729 kg/m3. The bubble point pressure for the fluid was 106.9 bar. Sand production was not observed during the test, but 0.6 - 0.7 Sm3 water was produced.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 25/6-1