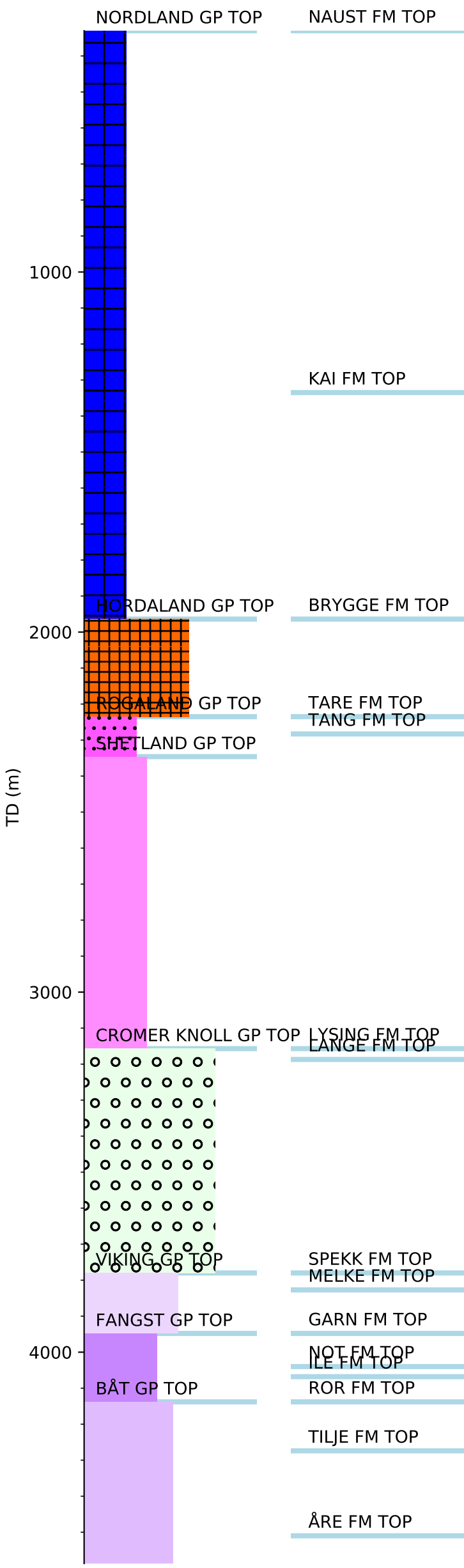


# LITHOSTRATIGRAPHY & HISTORY FOR WELL: 6506/12-5

## Wellbore History

GENERAL

Well 6506/12-5 was the third well drilled on the Smørbukk Sør Discovery (Beta-structure) in block 6506/12, Haltenbanken area. The well was designed to appraise the hydrocarbon potential and define the hydrocarbon-water contacts. Primary target was Middle and Early Jurassic sandstone. The Fangst Group siltstone member was expected to be sealing at this depth. The well would also test if intervals within the Ror and Tilje formations also could be sealing rocks. Secondary target was the Late Cretaceous Lysing Formation of the Cromer Knoll Group.

Prognosed TD was in the Åre formation at 4559 m RKB.

OPERATIONS AND RESULTS

Appraisal well 6506/12-5 was spudded with the semi-submersible installation Dyvi Delta on 17 October 1985 and drilled to TD at 4587 m in the Early Jurassic Åre Formation. The well was drilled with less than 2.5 deg deviation down to 4235 m. There were minor incidents with a failed anchor and lost circulation in the top hole. A poorly cemented 9 5/8" casing required 116 hours amendment before normal drilling could commence. The well was drilled with spud mud down to 393 m. From here a pilot hole was drilled to 1080 m using gypsum/polymer mud, and then opened up using spud mud. Further drilling was with gypsum/polymer mud from 1080 m to 3519 m, and with gel/lignite/lignosulphonate from 3519 m to TD. Shallow gas was not encountered.

Secondary target Lysing Formation came in at 3157 m and primary target Garn Formation at 3948 m. Hydrocarbons were encountered in both. An OWC was found in the Lysing Formation at 3178.2 m, and another OWC in the Garn Formation at 4010.5 m. The Not Formation as well as top of the Garn Formation was found to be sealing in this well.

Cores were cut in the Upper Cromer Knoll Lysing Sands and throughout most of the interval from the lower part of the Viking Group at 3910 m down to 4362 m in the Tilje Formation. A total of 429.43 m was recovered in 27 cores. Core no 9 in the Garn Formation was taken with a specially designed core barrel where the formation fluids that exude from the core is captured on a sponge lining the inside of the core barrel ("sponge core"). One SFT (Geco) was run in the Lysing Formation and 2 RFT runs (Schlumberger) were made in the Fangst and Båt Groups down to the Tilje Formation. A total of 82 pressure tests were performed in these runs and 45 of these gave reliable results. In addition, segregated samples were collected at 4 different depths; 3176 m, 3165.5 m, 4004 m, and 4029.5 m.

The well was permanently abandoned on 27 March 1986 as an oil and gas appraisal

TESTING

Four DST-tests were carried out in the well.

DST 1 tested the interval 4025 m to 4040 m in the base part of the Garn Formation. It produced 250 m3 water/day through a 19.1 mm choke. The temperature recorded in this flow was 141 deg C.

DST 2 tested the interval 4004 m to 4009.5 m in the middle part of the Garn Formation. It produced 140 Sm3 oil, 41 Sm3 gas and 40 m3 water /day through an 11.1 mm choke. The GOR was 293 Sm3/Sm3, the oil density was 0.835 g/cm3, and the gas gravity was 0.895 (air = 1). The temperature recorded in this flow was 140 deg C.

DST 3 tested the interval 3983 m to 3996 m in the middle part of the Garn Formation. It produced 2.4 Sm3 oil/day

through the bubble hose. The temperature recorded in this flow was 139 deg C.

DST 4 tested the interval 3174 m to 3177.5 m in the Lysing Formation. It produced 440 Sm3 light oil and 75 Sm3 gas/day through an 11.1 mm choke. The GOR was 170 Sm3/Sm3, the oil density was 0.800 g/cm3, and the gas gravity was 0.718 (air = 1). The temperature recorded in this flow was 112 deg C.