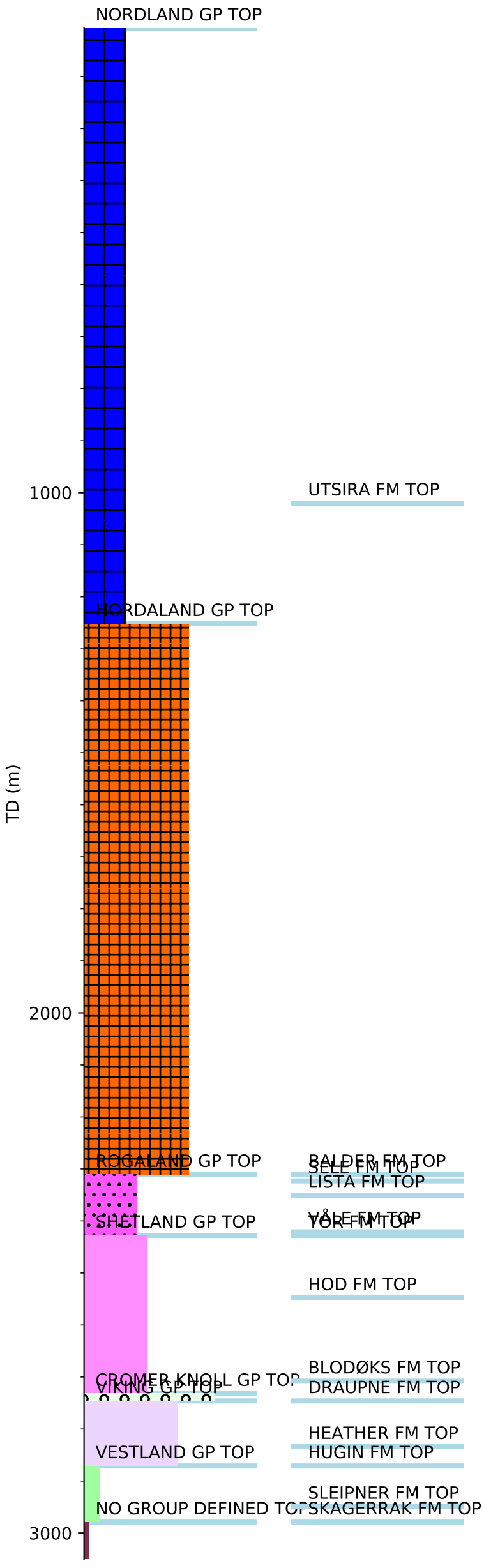
Groups

Formation Tops



Wellbore History

Block 15/12 is situated between the Jæren High to the south, Central Graben to the south-southwest, Andrew Ridge to the west, Ling Graben to the north and Viking Graben to the north-northwest. Well 15/12-6 S was the third well within the license area. It was drilled ca 3 km north of the 15/12-4 Varg Discovery well, which found 1.5 oil column in Jurassic sandstone. The main objective of 15/12-6 S was to test the hydrocarbon potential in Oxfordian sandstone in the north-western segment of the Beta west structure. Secondary objectives were Palaeocene sandstones (Maureen formation) and Triassic sandstones. Due to possible shallow gas problems, the well was moved 100 south to avoid this problem.

OPERATIONS AND RESULTS

Well 15/12-6 S was spudded 19 August 1990 with the semi-submersible rig Deepsea Bergen and drilled to 3050 m in the Triassic Skagerrak Formation. While drilling the 12 1/4" hole the penetration stopped at 2560 m. The BHA was pulled out and it was found that the MWD tool had been twisted off. The hole was cemented back and sidetracked from 2495 m with increased mud weight. Ran 7" liner to 3046 m, and cemented inside the liner to 2960 m. No shallow gas was encountered. The well was drilled with bentonite spud mud and CMC/seawater down to 615 m, with gypsum/polymer mud from 615 m to 2757 m, and with gel/lignosulphonate mud from 2757 m to TD.

Logs and shows indicated presence of hydrocarbons in the interval from 2428 to 2473 m in the late Cretaceous chalk but tests were not performed here due to tight formation. The Late Jurassic Oxfordian sandstone (Hugin Formation) came in at 2871 m, 80.5 m deeper than prognosed. It contained oil and from logs the OWC was found to be at 2943 m. There were no shows or other hydrocarbon indications below this depth.

A total of seven cores were cut, six in the interval 2838 to 2966 m and the seventh from 2980 to 2988.5 m. An FMT run in Oxfordian sandstone gave 12 pressure readings out of 27 attempts. One sample was taken at 2935.5 m. The sample contained a mixture of mud filtrate and formation water with traces of hydrocarbons.

The well was suspended on 4 November 1990 as an oil appraisal well, and was converted to development well (15/12-A-2).

TESTING

Two DST tests were performed in this well:

DST 1 from 2922 - 2930 m produced 153.8 Sm3/d oil and 11.683 Sm3/d gas through a 12.7 mm choke. The GOR was 76 Sm3/Sm3. A breakthrough, possibly through a fault, occurred at the end of the cleanup flow in this test, and this totally changed well productivity and also altered the flowing temperature. Before the breakthrough the temperature was 127 deg C and still increasing. After breakthrough the temperature sunk to 123 deg C.

DST 2 from 2875 - 2895 m produced 866 Sm3/d oil and 52530 Sm3/d gas through a 15.9 mm choke. The GOR was 61 Sm3/Sm3, the oil density was 0.843 g/cm3 and the gas gravity was 0.740 (air = 1). The reservoir temperature was measured to 127.5 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 15/12-6 S