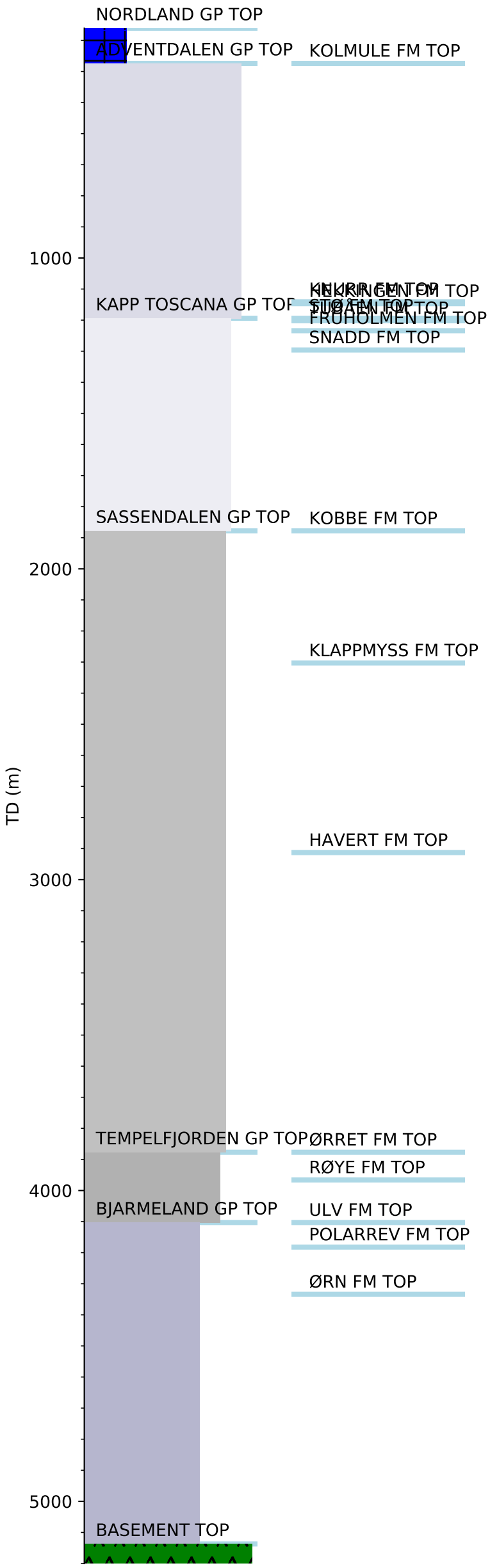
Groups

Formation Tops



Wellbore History

GENERAL

Exploration well 7226/11-1 is located on the Norsel High in the southeastern part of the Bjarmeland Platform area, close to the southwestern margin of the Nordkapp Basin. The well was designed to test Early Jurassic/Late Triassic sandstones, Base Anisian sandstones and Permian carbonates. The well should also test the geophysical and structural interpretation and improve the geological, geochemical and paleontological understanding of this new area in the Barents Sea. Planned TD was 4620 m, penetrating the Early Permian Unconformity.

The well is Reference Well for the Ulv, Polarrev, and Ørn formations.

OPERATIONS AND RESULTS

Wildcat well 7226/11-1 was spudded with the semi-submersible rig Ross Rig 22. October 1987 and drilled to TD at 5200 m in metamorphic basement rocks. A 9 7/8" pilot hole was drilled to 720 m without a riser. During opening of the pilot hole to 26" hole, an angle of 5° was built up at approximately 500 m and a new hole was drilled next to the 9 7/8" pilot hole. The 20" casing shoe was set at 698 m. Severe problems were experienced in the 12 1/4" section with four twist-offs (3 times core barrel and once jar). There was no shallow gas in the hole. The well was drilled with seawater and hi-vis pills down to 702 m, with gypsum / polymer mud from 702 m to 2515 m, and with gel / lignosulphonate mud from 2515 m to TD.

A thin (34 m) Early Jurassic Tubåen Formation sandstone was encountered at 1202 m, 19 m higher than expected. Drilling data and logs indicated that this reservoir was water bearing. In the Late Triassic Fruholmen Formation only 12.3 % net sand with an average 17.7 % porosity was estimated. Expected bottom Anisian sandstone reservoir at 2330 m was not developed as good as expected. Only thin sandstone stringers were encountered between 2280 m to 2310 m without good indications of hydrocarbons. It was drilled to 2913 m where a sudden increase in drilling velocity was experienced. Fluid flowing into the hole and high gas readings indicated top reservoir (Havert Formation, Dienerian age) at 2913 m. No gas/water contact was recognized. Top Permian carbonate was encountered at 4103 m.

Weak shows were recorded on sidewall cores from 560 m to 700 m in the Kolmule Formation, on core # 2 from 1202 m to 1224 m in the Tubåen sandstone, and on cuttings from 2205 m to 2214 m in the Kobbe Formation.

A total of ten conventional cores were cut in the well. A one-metre shale core was cut at 1167 m in the Hekkingen Formation. Cores # 2 and # 3 were cut in the interval 1202 m to 1246 m in the Tubåen and top of Fruholmen formations. Core # 4 (2.65 m) was a shale core at 2140 m in the Triassic Kobbe Formation. Core # 5 was cut in the interval 2951 m to 2958 m in the Early Triassic Havert Formation. Core # 6 was cut from 3057 m to 3084 m in the Havert Formation. Core # 7 was cut from 3236 m to 3240 m in the Havert Formation. Core # 8 was cut from 4139 m to 4146 m in the Early Permian Ulv Formation. Core # 9 was cut at planned TD at 4593 m to 4615.5 m in Early Permian rocks of the Ørn Formation. The partners and Statoil decided to drill further to investigate a deeper reflector. At 5137 m metamorphic rock was encountered. Core # 10 was cut at final TD from 5195 m to 5200 m in basement rock. The core contained chlorite, mica and schist. RFT fluid samples were taken at 1202 m in the Tubåen Formation and at 4597 m and 4935 m in the Ørn Formation. All samples contained water and mud filtrate. High salinity (110000 - 120000 ppm Cl-) was measured in the Tubåen sample, while low salinity (2900 - 3600 ppm Cl-) was measured in the Ørn samples.

The well was permanently abandoned on 11 April 1988 as a gas discovery.

TESTING

The well was tested in the intervals 2935 - 2951 m and 2913 - 2926 m. The lower interval was tight. The upper interval produced gas. The test was interrupted due to technical problems.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7226/11-1