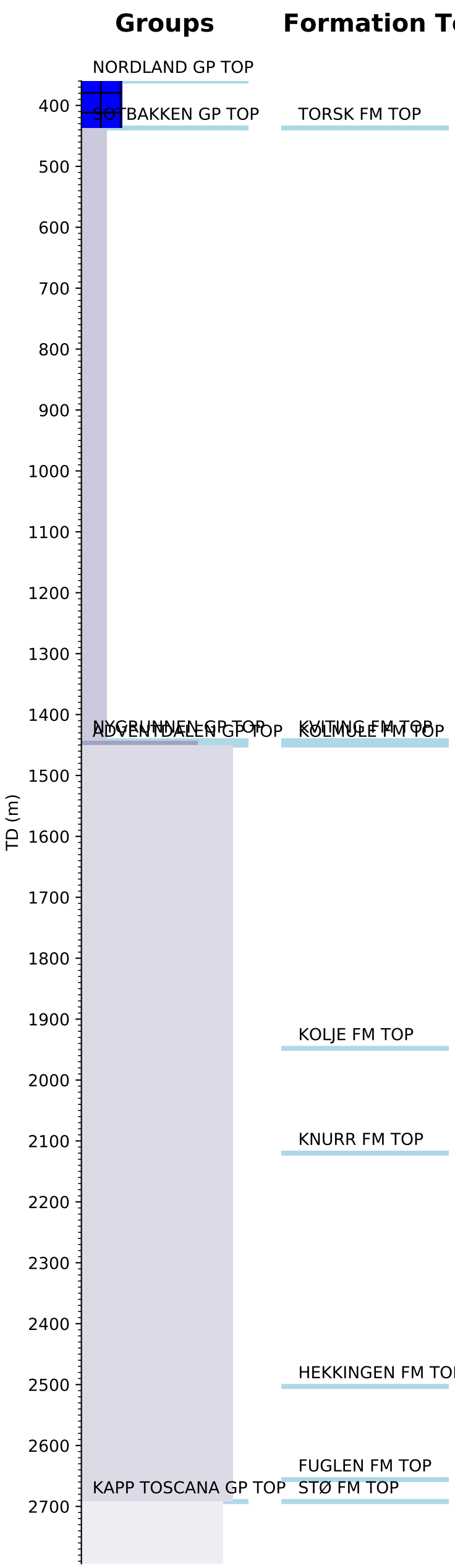

Wellbore History

GENERAL

Well 7120/2-2 was designed to test the Mesozoic rocks on a down-faulted position, south of the Loppa High. Well 7120/1-2 about 12.5 km to the southwest had tested minor amounts of oil in the Early Cretaceous. This was a new play concept on the Barents Shelf related to structural/stratigraphic combination traps as a result of wedge sedimentation in conjunction with the Kimmeridgian tectonic phase. The main objectives of the well were to test the prospectivity of the Early Cretaceous fan systems (wedge I and II) in an optimal position, and to test the prospectivity of the Middle Jurassic Stø Formation. The pore pressure was expected to be normal throughout the well. Shallow gas warnings were given for two levels down to 1437 m. A fault with displacement less than 10 m was seen at the planned well location at depth ca 565 m.

OPERATIONS AND RESULTS

Wildcat well 7120/2-2 was spudded with the semi-submersible rig Polar Pioneer on 27 January 1991 and drilled to TD at 2800 m in Early Jurassic sandstones of the Stø Formation. The well was drilled with spud mud down to 800 m and with KCl polymer mud from 800 m to TD. No shallow gas intervals were penetrated. No major problems were experienced while drilling the hole.

The first wedge, in the Kolmule Formation, was penetrated at 1712 m. The second wedge, expected to be sandstones of the Knurr Formation, was penetrated at 2125 m. Oil shows, mostly weak, were recorded from the top of this wedge and down to ca 2700 m. The strongest shows were recorded on a core from 2393 m to 2403 m. Geochemical analyses proved a ten metre claystone sequence with excellent source rock potential at 2120 m on top of the wedge; around 6% TOC and Hydrogen Index around 480 mg HC/g TOC. Vitrinite reflectance in the sequence is in the range 0.55 to 0.60 % Ro and Tmax around 434 deg C, corresponding to early oil window maturity. A second excellent source interval was penetrated in the Late Jurassic Hekkingen Formation at 2503 m. This sequence is 154 m thick and contain from 3 to 12% TOC with Hydrogen Index from 180 to 250 mg HC / g TOC. Vitrinite reflection was measured in the range 0.51 to 0.71 and Tmax in the range 442 deg C to 446 deg C, the latter indicating distinctly higher maturity in Hekkingen compared to Knurr. An RFT segregated sample was taken at 2501 m. It recovered water, oil and some gas. Geochemical analyses of the gas verified a light isotopic composition in all hydrocarbon components, indicating an early mature gas. The oil biomarkers indicated a maturity of the RFT oil corresponding to %Ro in the range 0.6 to 0.9. A total of six conventional cores were cut in the well: core 1 from 1895 m to 1923 m in the upper wedge/Kolmule Formation, core 2, 3, and 4 in the interval 2163 m to 2403 m in the lower wedge/Knurr Formation, core 5 from 2636 m to 2646 m in the Lower Hekkingen Formation, and core 6 from 2720 to 2724 m in the Stø Formation. A total of 120 sidewall cores were attempted and 97 were recovered.

The well was permanently plugged and abandoned on 21 March 1991 as a dry hole with minor shows in Cretaceous and Jurassic siltstones and sandstones.

TESTING

No drill stem test was performed

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7120/2-2