



## Wellbore History

### GENERAL

Wildcat well 7122/6-1 was designed to drill a prospect located in the central part of the block, located in the eastern part of the Hammerfest Basin. The purpose of well 7122/6-1 was to test the hydrocarbon potential of the Middle Jurassic to Upper Triassic sandstones in the main structure of the block.

### OPERATIONS AND RESULTS

Wildcat well 7122/6-1 was spudded with Polar Frontier Drilling semi-submersible installation Polar Pioneer on 6 September 1987 and drilled to TD at 2707 m in the Middle - Late Triassic Snadd Formation.

The structure penetrated by the well is a large tilted block dipping southwards. The northern closure is a major WNW-ESE fault. Top of the main markers were encountered higher than prognosed: top Stø Formation came in 71 m higher, and top Trias came in 183 m higher than expected. The Jurassic reservoirs were found water bearing, however, some oil recovered by RFT indicated the presence of a thin (1.5 m) oil zone at the top of the Stø formation. The late Triassic Snadd Formation proved gas and condensate in a 71.5 m gross thickness reservoir. Weak shows were recorded in cuttings from the Hekkingen shale. Strong whitish yellow direct fluorescence was observed in the cored sandstones all through the Stø Formation down to 2040 m. Weak shows were recorded on the cored sandstones in the Nordmela, Tubåen, and Fruholmen Formations. Below this level, in the Triassic section, weak oil shows were recorded in sandstones, including the reservoir section between 2400 to 2450 m that produced gas and condensate in the DST.

A very dense geochemical screening in this well showed only very lean source rocks (< 1% TOC) above 1340 m. Between 1340 m and 1931 m, the average TOC is around 1% with a somewhat richer interval between 1750 m and 1900 m (TOC 1.5 to 3%), but with HI generally lower than 100 mg/g. Between 1931 m and 2015 m, high organic content (TOC 10 to 15%) and high HI (280 - 350 mg/g) indicate a very good source rock in the Hekkingen Formation. Between 2040 m to 2099 m) high TOC values are related to coal beds or organic shales (Nordmela and Tubåen formations). From 2100 m to 2710 m (TD), TOC was generally low, but with some moderately good intervals such as 2100 m - 2150 m (up to 3%). The HI was generally < 100 mg/g with some intervals at 100 - 150 mg/g. Thus, this section presents a low source rock potential. The vitrinite Ro and Tmax indicate that the well enters the oil window at around 2000-2100 m, just where the best source rock is found (Ro = 0.6% and Tmax = 435°C).

Four cores were cut in the interval from 2019 m to 2099 m in the Stø, Nordmela, Tubåen, and Fruholmen Formations. A total of eleven RFT fluid samples were taken below 2015 m in the Jurassic and Triassic sections. The sample at 2015.8 m contained a small amount of condensate (0.5 cm<sup>3</sup>), while the sample at 2425 m contained a good quantity of condensate (600 cm<sup>3</sup>) with density 0.752 g/cm<sup>3</sup>. The other samples recovered various compositions of mud filtrate, water, and gas.

Well 7122/6-1 was permanently abandoned on 11 November 1987 as a gas and condensate discovery.

### TESTING

Two DST's were performed in the Late Triassic reservoirs (Snadd Formation). DST1 perforated 2439.5 m to 2449 m and gave no flow. DST2 perforated 2424 m to 2434 m. During this test the well flowed gas and condensate with flow rates ranging from 530 000 to 567 000 Sm<sup>3</sup>/d of gas and 73 to 66 Sm<sup>3</sup>/D condensate through a 17.5 mm choke. GOR varied from 7377 Sm<sup>3</sup>/Sm<sup>3</sup> to 8558 Sm<sup>3</sup>/Sm<sup>3</sup>.

## LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7122/6-1