



## Wellbore History

### GENERAL

Exploration well 7219/8-1 S is located in the Bjørnøya Sør area west of the Veslemøy High. This was a new geological province and hence the well was a true wildcat. The well was drilled up-dip of a rotated fault block at Late to Middle Jurassic level. The primary purpose of the well 7219/8-1 S was to test the Middle Jurassic Stø Formation. A secondary objective was to test possible sandstone in Late Jurassic Hekkingen Formation, and finally, to test possible sandstone in a defined stratigraphic trap in the Early Cretaceous sequences.

### OPERATIONS AND RESULTS

Well 7219/8-1 S was spudded with the semi submersible installation Ross Rig on 5 October 1992 and drilled to TD at 4611.5 m, 91 m into the Early - Middle Jurassic Stø Formation. The well was drilled deviated towards northwest with a direction of approximately 294 degrees with approximately 22 degrees inclination. Kick off point was at 1396 m. No shallow gas was identified. The well was drilled with spud mud down to 1018 m and with KCl / polymer / Anco 208 (glycol additive) mud from 1018 m to TD. It was one of the first to be drilled with a glycol mud system to inhibit reactive shales.

Down to the Base Cretaceous at 3471.5 m (3343 m TVD RKB), the well penetrated mainly claystones. The shallowest prospect, the Cretaceous sequence, was penetrated in a distal position, and hence was most likely shaled out. The Jurassic comprised the Late Jurassic Hekkingen and Fuglen Formations and the Early to Middle Jurassic Stø Formation. The secondary Hekkingen prospect was penetrated about 720 m deeper than prognosed and was only 9 m thick. Pressure test indicated a tight formation. The large difference between the prognosed and actual depth was mainly due to a much thicker Early Cretaceous sequence than prognosed. The main prospect, the Stø Formation, was penetrated 450 m deeper than prognosed. The Sandstone with porosity in order of 5-8%, was water bearing. The relatively tight sandstone of the Stø Formation is explained by the large maximum depth of burial in addition to present depth of burial (an uplift/erosion of 800 m to 1000 m can be estimated).

Traces of hydrocarbon shows were seen in some silty parts in the Cretaceous from 2400 m to 2430 m (2349 - 2370 m TVD RKB) in the Knurr Formation and from 2595 m to 2652 m (2532 - 2585 m TVD RKB) in the Knurr Formation. Otherwise weak shows were recorded on sidewall cores from claystones in the Early Cretaceous to Late Jurassic interval 2815 m to 3740 m. Organic geochemical screening analyses show consistently high TOC over this interval (typically 2 % to 3.8 %). The maturity is quite advanced (%Ro typically 0.9 to 1.5) and increases with depth as the hydrogen index decreases from about 120 to about 50 mg/g HC. The glycol used in the mud does not appear to have affected these data. It thus seems that the source potential of the shales in this sequence is much reduced by thermal maturation in the well.

One core was cut in the Hekkingen Formation over the interval: 4270 m to 4278 m (4085 - 4092 m TVD RKB). This core comprised only claystones. Two cores were cut in the sandstones of the Stø Formation over the following intervals: 4550 m to 4551 m (4347 - 4348 m TVD RKB) and 4597 m to 4611.5 m (4391 - 4404 m TVD RKB). These cores comprised very tight sandstones with no shows. Formation Multi Tester (FMT) pressure tests were attempted both in the sandstones of the Hekkingen and the Stø Formation. Only those from the Stø Formation gave pressure data, but from these no reliable pressure gradient could be extracted. A segregated sample at 4531.7 (4329.5 m TVD RKB) in the Stø Formation gave formation water with no traces of hydrocarbons.

The well was plugged and abandoned as a dry hole on 26 December 1992.

### TESTING

No drill stem test was performed

## LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7219/8-1 S