



Wellbore History

GENERAL

Exploration well 7119/9-1 is located on the Ringvassøy ? Loppa Fault Complex west of the Snøhvit Field area. The well was designed to test a narrow horst, elongated in a NE-SW direction. The horst brings the main prospect, the Middle to Lower Jurassic Sandstones up to a depth of about 2700 m, in a position surrounded with Cretaceous Shale. The well is located close to the top of the horst. This target was found gas bearing in the two nearest wells: 7119/12-3 to the south, located in the same structural trend, and 7120/7-1, located higher up toward the Hammerfest Basin to the south-east.

OPERATIONS AND RESULTS

The well was spudded with the semi-submersible installation Byford Dolphin on 28 June 1984 and drilled to TD at 3248 m in Late Triassic rocks. The well took a kick at 2744 m where a pit gain of 2 m³ was observed. Some technical problems occurred on the rig during a wiper trip before final logging of the 8 1/2" hole. During logging of the same sequence the RFT tool got stuck twice but was recovered in both cases. The well was drilled using water-based mud.

The well drilled through mainly claystone and shale formations down to top Jurassic at 2702 m. The lower Cretaceous Kolmule Formation was found silty and sandy between 2400 m and 2450 m. Top Jurassic Hekkingen Formation was penetrated at 2702 m and contained two good reservoir sections, a Middle ? Early reservoir and a deeper Pliensbachian reservoir. Above the upper reservoir zone 46 m of Late Jurassic shale was drilled. This sequence consisted of an upper Volgian ? Kimmeridgian sequence and a lower Oxfordian-Callovian shale sequence separated by an Oxfordian unconformity near 2719 m (more accurate depth cannot be proven due to logging problems in this section of the well). The upper Jurassic sandstone reservoir (Stø Formation) was penetrated at 2748 meters. The reservoir was well developed with a 120 meter gross thickness. The two cores cut near the top of the reservoir between 2749 m and 2783 m provided good petro-physical characteristics in the upper part (average porosity of 15% in the 15 upper meters), dropping rapidly in the second part of core 2 (average porosity about 8%). The reservoirs were found water bearing with a very high salinity and with high formation pressure (a 1.49 - equivalent mud weight -formation pressure was encountered at the top of the reservoir). The lower Pliensbachian reservoir (Tubåen Formation) was encountered at 3027 m with 158 m gross thickness. This zone was also water bearing and high pressured.

The kick at 2744 m, just above the upper reservoir zone, was accompanied by up to 14% background gas (C1 to C4) when circulating out. Fluorescence cuts, very pale to whitish, were recorded on the cores from the upper reservoir zone as well as on the sandstone cuttings between 3030 m and 3125 m. In addition residual oil gave direct weak, light brown, fluorescences on cuttings from the lower reservoir zone, mainly light brown and greenish between 3030 m and 3055 m; weaker spots were seen between 3055 m and 3125 m.

Two conventional cores were cut from 2745 m to 2779 m loggers depth (2749 m to 2783 m drillers depth). Three RFT samplings were attempted. A sample at 2748.5 m recovered 3.2 litres of clear formation water from the 1-gallon chamber. The water had a density of 1.136 g/ml, a pH of 5.62, and a salinity of 213.12 g/l. Two other samples at 3096 m and 3034 m were attempted in zones that provided hydrocarbon shows while drilling. Only one of these (3096 m) recovered fluid: mud and filtrate.

The well was permanently abandoned on 25 September as a dry hole.

TESTING

No drill stem test was performed

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7119/9-1