



Wellbore History

GENERAL

Well 6406/12-1 S was designed to drill the Kappa Prospect, which is located west of the Vingleia fault complex and northwest of the Frøya High in the southeastern part of block 6406/12. Structurally the block is situated in the southern part of the Halten Terrace. The prospect was one of several prospective sequences in a Late Jurassic fan complex mapped in the area. The prospect was a stratigraphic trap with no structural closure. The primary objective of the well was to test the hydrocarbon potential of Late Jurassic sandstones in the Kappa prospect. Possible other sands in the Cretaceous or Late Jurassic were secondary targets. The well was also designed to test the geophysical and stratigraphic interpretation of the area and improve the geological, palaeontological and geochemical understanding. No shallow gas warnings were given for this well. Large boulders present in the glacial deposits in the area might cause drilling problems in the 36" and 26" hole section. The pore pressure estimates for the Late Jurassic were uncertain as one of the correlation wells (6406/8-1) penetrated highly over-pressured formations and had serious drilling problems. The other correlation well (6407/10-2) did not penetrate any highly over-pressured formation and had no such problems.

OPERATIONS AND RESULTS

Due to shallow gas from site survey the well was moved 350 m away from target and drilled deviated. Wildcat well 6406/12-1 S was spudded with the semi-submersible rig Ross Rig 15 December 1990. A pilot hole was first drilled to 992 m where gas started to flow into the well bore. The well was killed with heavy mud and plugged. The well was re-spudded 2 January 1991. No major problems occurred while drilling the well after re-spudding. The pore pressure was 1.55 g/Cm3. and gas values were generally low and decreasing down hole. It was drilled to a total depth of 3965 m in the Middle Jurassic Melke Formation. The well was drilled with seawater and hi-vis pills down to 965 m and with Gyp/PAC mud from 965 m to TD

No significant sand development was seen in the Cretaceous section. Top reservoir (Rogn Formation) was encountered at 3600 m, which was 45 m lower than prognosed. It consisted of sandstone as prognosed, but proved to be water bearing. Shows were however observed on conventional and sidewall cores from the Rogn Formation. A total of 120 sidewall cores were attempted and 61 were recovered. A total of 3 conventional cores were cut in this well within the intervals 3603 m to 3640 m in the Rogn Formation and 3816 m to 3818 m in the Melke Formation. An RFT fluid sample was taken at 3610 m. It contained water and mud filtrate. The well was permanently abandoned on 1 March 1991 at as a dry well.

TESTING

No drill stem test was performed

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 6406/12-1 S