



Wellbore History

GENERAL

Well 7228/7-1S is situated in the Nordkapp basin. The Nordkapp basin is the most pronounced structural element east of Loppa High, with a basinal-axis oriented NE-SW. From top Cretaceous and down to TD of the well the sediments are steeply dipping due to salt diapirism, with the salt diapir located SE of the surface location. The main objective of well 7228/7-1S was to test the hydrocarbon potential of the Upper Triassic Snadd Formation sandstones. Secondary objectives were to test the hydrocarbon potential in Early to Middle Jurassic sandstones, the Stø, Nordmela and Tubåen Formations, and the Middle Triassic Kobbe Formation sandstones. The well path is deviated and designed to penetrate below the salt diapir.

OPERATIONS AND RESULTS

Wildcat well was spudded on 5 December 2000 with the semi-submersible installation "Transocean Arctic" and drilled to a TD of 2087 m in Early Permian sediments. No shallow gas was expected, but since this was a new area a 9 7/8" pilot hole was drilled. No shallow gas was observed by the ROV. Tracks 7228/7-1 S and 7228/7-1 S T2 were both finished in the Hekkingen Formation due to hole problems in the 17 1/2" section. The 7228/7-1 S track was drilled with sea water and hi-vis bentonite pills down to 372 m, with sea water / hi-vis pills / polymer-treated bentonite mud from 372 m to 507 m, with NaCl / Polymer from 507 m to 709 m, and with sea water from 709 m to 1362 m. The 7228/7-1 S T2 track was kicked of 7228/7-1 S at 1332 m and drilled to 1348 m with a NaCl / sea water / polymer / glycol system. Track 7228/7-1 S T3 was kicked of from below the 20" casing shoe in 7228/7-1 S and drilled with "Glydril" mud (KCl / Polymer / glycol) from 530 m to TD. The observed formation tops were encountered shallower than prognosed, outside the uncertainty range. The deviation from prognosed depths increased with depth, from 79.0 m for the Cretaceous Knurr Formation to 229.5 m for the Triassic Snadd Formation. The Fuglen Formation was encountered below the Hekkingen Formation. It was so thin (12.5 m) that it was below the seismic resolution. Several good reservoir zones were penetrated in the Jurassic section, the Stø Formation, the Nordmela Formation and the Tubåen Formation. At 1712 m the well drilled unexpectedly into a Permian block rather than the target Snadd Formation sandstone. One core was cut in the Stø and Nordmela Formations. No MDT sampling was performed in the well. The Jurassic reservoirs were water wet. This was verified from cuttings and MWD logs. A weak hydrocarbon odour was recorded from the core in the Stø Formation, but only dead, tarry oil was seen, and laboratory studies of the core verified a water-wet formation. Total gas readings increased gradually from approximately 0.1% below the 20" casing shoe to nearly 1 % in the interval between 850 to 950 m. Further down to 1310 m the gas level gradually dropped to approximately 0.2%. From there on gas level increased to between 1-2 %. From a few metres above top Hekkingen Formation and down to TD of the 17 1/2" section, significant amounts of heavier components (C2 - C5) were recorded by the gas chromatograph. Also in the interval between 810 to 1010 m minor amounts of gas heavier than C2 were recorded. No cut fluorescence was seen in the Hekkingen claystones (with Isopropanol as cutting agent). In the 8 1/2" section, including the primary target Snadd Formation, no good visual shows were seen and gas readings were generally low. When "hot shot" dating confirmed the unexpected Permian sediments, the well was plugged back to the 13 3/8" shoe and permanently abandoned as a dry well on 8 January 2001.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7228/7-1 S