



## Wellbore History

### GENERAL

Block 6405/10 is located along the Jan-Mayen Lineament in the Norwegian Sea, in the transition zone between the Møre Basin in the south and the Vøring Basin in the north. Well 6405/10-1 is located half-way between the Ormen Lange and the Ellida discoveries. The primary well objective was to prove the presence of reservoir quality sandstone and hydrocarbons in the Midnattsol prospect. The primary target was deep marine sandstones of Campanian age in the Late Cretaceous Nise Formation. In addition, understanding the origin of the associated seismic flat event was an important objective for this well.

### OPERATIONS AND RESULTS

Wildcat well 6405/10-1 was spudded with the semi-submersible installation Transocean Leader on 5 July 2007 and drilled vertically through Quaternary, Tertiary and Late Cretaceous Formations to TD at 3182 m in the Late Cretaceous Nise Formation. A 9 7/8" pilot hole, designated 6405/10-U-1, was drilled to a total depth of 1850 prior to drilling the main hole. The objective of the pilot hole was to detect shallow water flows in the Naust Formation, in addition to acquiring good quality logging data of the upper section. Well 6405/10-1 was spudded 50 m from the pilot hole location in 928 m water depth. No significant technical problems were encountered during the operations. The well was drilled with seawater and sweeps down to 1760 m, with PERFORMADRIL water based mud from 1760 to 2442 m, and with INNOVERT paraffin/mineral oil based mud from 2442 m to TD. The oil base was analysed to be composed of hydrocarbons in the C11 to C16 range.

The Nise Formation was penetrated at 2937 m and consisted of bioturbated deep marine sandstones, siltstones and shales. The Nise Formation held a hydrocarbon column of approximately 60 m, but the reservoir properties were poor. The hydrocarbon column corresponded with the structural closure, but lied appreciably shallower than the mapped flat event, which suggested a hydrocarbon column of 140 m. The well results did not resolve whether the flat event is related to fluids (residual gas saturation) or to diagenetic changes. No oil shows were recorded in the well, or from post-well organic geochemical analyses. Very high levels of gas were recorded in the interval 2779 - 2808 m (Tang Formation - Egga Informal Formation). The fluid comprised of over 94% C1 (based on average C1 to C4% composition). The mud weight was increase from 1.48 sg to 1.54 sg while circulating this gas out. Significant gas levels were recorded in the interval 2935 to 3004 m containing a similar fluid composition.

Two cores were cut from 3004 to 3035 m. Extensive wire line data acquisition was performed, including MDT pressure testing and sidewall cores. Hydrocarbon gas samples were collected at 2951.5 m and 2994.4 m and a water sample was collected at 3049.2 m.

The well was permanently abandoned on 7 September 2007 as a gas discovery.

### TESTING

No drill stem test was performed.

## LITHOSTRATIGRAPHY & HISTORY FOR WELL: 6405/10-1