



Wellbore History

GENERAL

Well 16/1-16 was drilled on the east side of the Gudrun Terrace towards the Utsira High in the North Sea. The main objectives were to test the hydrocarbon potential in Late Jurassic/Early Cretaceous sands (the Noor prospect), and to appraise the extension of the Ivar Aasen Field of Middle Jurassic/Triassic age into PL457 area (Asha prospect). A possible secondary target at Paleocene level is the Heimdal sand pinchout. The well was planned to drill into Zechstein carbonates that may act as reservoir in this area.

OPERATIONS AND RESULTS

Well 16/1-16 was spudded with the semi-submersible installation Bredford Dolphin on 23 October 2012 and drilled to TD at 2722 m in the Permian Rotliegend Group. A 9 7/8" pilot hole was first drilled to 600 m to check for shallow gas. No shallow gas was observed. Operations proceeded without significant problems. The well was drilled with

No significant problem was encountered in the operations. The well was drilled with seawater and hi-vis sweeps down to 592 m and with water based Performadril mud from 592 m to TD.

The interpreted Heimdal Formation sand reservoir was absent. The Lista Formation consists predominantly of Claystone with Limestone stringers.

In the first main exploration target (Noor prospect), the well penetrated approximately 90 m gross sandstones altogether, but there were no hydrocarbon shows or anomalous gas values seen. The Early Cretaceous Åsgard Formation is a Limestone/Chalk - sandstone sequence, with a predominantly limestone/chalk in the top 50 m and sandstone from 2120 m and towards the base. The Draupne Formation was found as a primarily siltstone sequence with abundant thin sandstones and limestone streaks throughout.

In the other main target (Asha prospect), the 16/1-16 well encountered a gross oil column of around 70 m in excellent reservoirs within the Middle Jurassic Hugin Formation, and into the Triassic Skagerrak Formation. Two hydrocarbon zones were found in separate pressure regime (0.6 bars difference). The first oil zone has an ODT at ca. 2435 m in the Hugin Formation. The deeper oil zone has an ODT at ca. 2454.2 m in the Skagerrak Formation. No oil/water contact was encountered. The oil found in 16/1-16 is of different type (heavier) than the oil previously proven in the Ivar Aasen field to the West. Moreover, unlike in Ivar Aasen, no gas cap is present in the Asha Discovery.

The 29 m thick Zechstein Group was found water wet. It is composed of dolomites and limestone and has relatively poor reservoir properties

Three consecutive cores were cut from 2385 m in the Hugin Formation to 2441 m in the Skagerrak Formation. MDT fluid samples were taken at 2163.28 m (water), 2385.2 m (oil), 2399.9 m (oil), 2424 m (oil), 2452.7 m (oil), 2458 m (water), and 2498.2 m (water).

The well was plugged back and completed for sidetracking on 7 December 2012.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 16/1-16