



Wellbore History

GENERAL

Well 16/2-13 S was drilled on the Johan Sverdrup discovery on the Utsira High in the North Sea, 6.7 km northeast of well 16/2-8 and 2.4 km north-east of well 16/2-6. The main objectives were to confirm an oil saturated Upper Jurassic Draupne sand thickness of approximately 30 meter in the northeastern part of Johan Sverdrup; to establish the Johan Sverdrup pressure system and oil-water-contact in this area; and to improve the understanding of Draupne sand facies changes and lateral Draupne shale thickness variations.

OPERATIONS AND RESULTS

The 16/2-13 (later renamed as 16/2-U-13) well was drilled according to the well design with the semi-submersible installation Transocean Arctic. A 9 7/8” pilot hole was drilled from the seabed and encountered shallow gas at 382 m. The hole was then plugged back with gas tight cement and the rig was moved 45 m SW. The appraisal well 16/2-13 S was then re-spudded on 24 July 2012 and a new 9 7/8” pilot hole was drilled to 725 m without seeing shallow gas. Drilling continued with 36”, 26”, 12 ¼” and 8 ½” hole sections and reached TD at 2090 m (2085.7 m TVD) in Pre-Permian fractured granite and quartzite rock. Seawater and high viscosity pill was used as drilling fluid on the riserless sections down to 725 m, while Performadril water based mud was used from 725 m To TD.

The Draupne Formation shale was encountered at 1914.5 m (1910.2 m TVD) and was 10 m thick. Intra Draupne Formation sandstone was drilled from 1924.4 m to 1939.9 m (1920.1 m to 1935.6 m TVD). A 25 m oil column was confirmed in these sandstones and down through sandstones in the underlying Heather Formation (1 m thick) and Hugin Formation (8 m thick) to top Skagerrak Formation at 1949.3 m (1945 m TVD). The reservoir was oil filled to the base with an oil-down-to contact at top Skagerrak Formation. The upper Intra Draupne Formation sandstone had very good reservoir properties. No shows were recorded above top Jurassic or below the oil-bearing reservoir.

Two cores were cut across the reservoir from 1918 m in Draupne Formation shale to 1971.8 m in the Rotliegend Group. The core to log depth shift is -1.6 m for both cores. The core recovery was 100%. RCX oil samples were collected at, 1925.0 m, 1940.7 m and 1948.7 m.

The well was permanently abandoned on 30 August as an oil appraisal well.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 16/2-13 S