



Wellbore History

GENERAL

Well 16/2-11 was drilled to appraise the western part of the Johan Sverdrup (formerly Avaldsnes) discovery on the Utsira High in the North Sea. The primary objective was to prove a 50 to 60 m oil column in Middle - Late Jurassic sandstones. The well would also serve as calibration for seismic interpretation and depth conversion and it would give information about any lateral variation in facies and thickness of the Johan Sverdrup reservoir.

OPERATIONS AND RESULTS

Appraisal well 16/2-11 was spudded with the semisubmersible installation Bredford Dolphin to 2126 m in the Triassic Skagerrak Formation. A 9 7/8" pilot hole was drilled to 756 m to check for shallow gas. No indication of shallow gas was observed. No significant problem was encountered in the operations. The well was drilled with sea water and hi-vis pills down to 756 m and with Performadril Water Based Mud from 756 m to TD.

Top reservoir, Intra-Draupne Formation sandstone, was encountered at 1890 m and Middle Jurassic sandstones, Vestland Group, was encountered at 1910 m. The reservoir was encountered at the prognosed depth and 54 m oil column in an oil-down-to situation was proven. The well also confirmed good reservoir properties, in line with the earlier Johan Sverdrup wells where the Late Jurassic reservoir was also of excellent quality with a high net to gross ratio. A peak of high gamma ray between 1889.3 m and 1890 m, indicated a 0.7 m thick Draupne shale on top of the reservoir, but this could not be confirmed by cuttings samples and adjacent sidewall cores. Oil shows were restricted to the Middle-Late Jurassic reservoir section.

Five cores were cut from 1891.6 m, just below the possible Draupne shale, to 1957.78 m, ca 12 m into the Skagerrak Formation. Overall good recovery was obtained. MDT fluid samples were taken at 1895.61 m (oil), 1918.41 m (oil), 1937.02 m (oil), 1941.75 m (oil), 1951.38 m (water), and at 2059.09 m (water).

The well was permanently abandoned on 29 March 2012 as an oil appraisal well.

TESTING

A production test (DST) was run over the interval 1934.5 m to 1943.3 m in the previously untested Middle Jurassic reservoir section to investigate its flow properties. The main flow gave 476 Sm³ oil and 14500 Sm³ gas per day through a restricted 40/64 choke, with good reservoir properties indicating a laterally continuous reservoir. The GOR was 30 Sm³/Sm³, the oil density was 0.89 g/cm³, and the gas gravity was 0.768 (air = 1). The flowing temperature, recorded at depth 1908.2 m, was 79.7 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 16/2-11