



Wellbore History

GENERAL

Well 6407/1-5 S was drilled to appraise the northern extension of the Maria Field in the Haltenbanken area in the Norwegian Sea. The primary objective was to test the sands in the Middle Jurassic Garn, Ile and Tilje Formations. In case of petroleum in the Garn Formation, a DST was planned to be carried out.

OPERATIONS AND RESULTS

Appraisal well 6407/1-5 S was spudded with the semi-submersible installation Borgland Dolphin on 31 January 2012 and drilled to TD at 4177 m (4164 m TVD) in the Early Jurassic Tilje Formation. A 12 1/4" pilot hole was drilled from 398 m to 703 m and shallow gas was indicated. The 20" casing was set above the shallow gas zone, at 563 m. Due to the shallow gas, rough weather, rig repair, and additional coring and wire line runs total rig time became 26 days longer than planned, but otherwise there were no serious problem related to the operations and all objectives were met. It was drilled vertically down to 2300 m, with a 10.6 deg deviation from ca 2300 m to ca 3200 m and then again vertically from 3200 m through the reservoir section and down to TD. The well was drilled water based down to 1199 m and with Omniflow oil based mud from 1199 m to TD.

The target Garn Formation was encountered at 3811 m (3797.8 m TVD) with a 40 m oil column down to the OWC at 3851 m. The Garn sandstone had a net/gross ratio of 0.99 only using a calcite flag as cut-off. The Ile and Tilje Formations were water bearing. Apart from shows in the hydrocarbon bearing section in the Garn Formation the only oil shows above the oil based mud in the well were in thin sandstone stringers in the lower part of the Melke Formation.

Three cores were cut from 3785 m in the base of the Melke Formation to 3859 m in the Garn Formation. A fourth core was attempted but was accidentally left in the hole. RCI wire line samples were taken at 3826.5 m (oil), 3841.5 m (oil), 3858 m (water), and 3863.4 m (water).

The well was permanently abandoned on 21 May 2012 as an oil and gas appraisal well.

TESTING

One drill stem test was carried out from the interval 3809 m to 3832 m in the Garn Formation. The test produced 101 Sm³ oil and 18512 Sm³ gas /day through a 28/64" choke. The gas contained 6 ppm H₂S and 4 % CO₂. The GOR was 183 Sm³/Sm³. The bottom hole temperature in the main flow was 135.2 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 6407/1-5 S