



## Wellbore History

### GENERAL

Well 1/3-10 is located on the Hydra High, ca 20 km south-south west of the Ula Field in the North Sea. It was drilled to appraise the oil and gas bearing Late Paleocene Forties Sandstone in the Oselvar structure, first discovered by the 1/3-6 well drilled by Elf Aquitaine Norway A/S in 1991. The main goal of the well was to acquire sufficient reservoir data to make a decision on future development of the Oselvar discovery.

### OPERATIONS AND RESULTS

Appraisal well 1/3-10 was spudded with the jack-up installation Mærsk Guardian on 25 October 2007 and drilled to TD at 3288 m in the Paleocene Lista Formation. The well was drilled and tested without significant technical problems. It was drilled with seawater / PHB down to 816 m, with KCl/Polymer mud from 816 to 1300 m, and with Carbo SEA OBM from 1300 to TD.

The top of the Hordaland Group came in deep (19 m) compared to prognosis, as did the Balder and Sele Formations of the Rogaland Group (12 m and 5 m deep respectively). More significantly, a thicker than prognosed Sele Formation resulted in the target reservoir Forties sandstone coming in at 3153 m, 24 m deep compared to prognosis. The thickness of the Forties Sandstone however, was 52 m, which is only one meter thinner than prognosed. Of this thickness 32 m was designated as net reservoir using a porosity cut-off value of 10%. The average porosity was 17.7 % and the water saturation was 44.9%. The Forties Formation contained light oil with a free water level for the area estimated at 3245 m. Shows were only recorded in the target Forties Formation sandstones.

The Forties Formation Sandstone was cored from 3159 to 3232 m with 99.8% recovery. An RCI log was run for pressure and fluid sampling. Four light oil gradients with increasing density downwards could be identified from these data. Light oil fluid samples were taken in Run 2A at two depths, 3162.2 m and 3186.3 m. Run 2D samples were taken at 3203.3 m (approximately 70% water and 30% oil), and at 3196.5 m (about 80% light oil and 20% water).

The well was plugged back for sidetracking on 7 January 2008 as an oil and gas appraisal well.

### TESTING

The Forties Formation was tested by an open hole ("barefoot") DST in the 8 1/2" section from 3158 to TD. The test produced 457 Sm<sup>3</sup> oil and 212453 m<sup>3</sup> gas /day through a 48/64" choke in the main flow period. The GOR was 465 m<sup>3</sup>/m<sup>3</sup>, the oil density was 0.791 g/cm<sup>3</sup>, and the gas gravity was 0.855 (air = 1), with 5 ppm H<sub>2</sub>S and 2.5 % CO<sub>2</sub>.

## LITHOSTRATIGRAPHY & HISTORY FOR WELL: 1/3-10