



Wellbore History

GENERAL

Well 16/2-4 is located on the Utsira High in the North Sea. The objective of drilling 16/2-4 was to delineate the Tor Formation oil discovery made in 16/2-3 and to test the permeability and productivity of the chalk. The secondary objective was to check the presence of hydrocarbon in the basement and to test the permeability and productivity of the basement rock.

OPERATIONS AND RESULTS

Well 16/2-4 was spudded with the jack-up installation West Epsilon on 8 October 2007 and drilled to TD at 2000 m, 121 m into basement rock. No major problem was encountered in the operations. The well was drilled with spud mud down to 640 m and with KCl/polymer/glycol mud from 640 m to TD. No shallow gas was observed by the ROV at the wellhead or by the MWD while drilling the 36" hole or the 17 1/2" hole.

The Tor Formation reservoir section was encountered with hydrocarbons at 1709.5 m, 12.5 m shallower than prognosed. A clear hydrocarbon contact was not seen. The best indication of an OWC was seen on cores as a disappearance of shows below 1775. The well showed that the size of the 16/2-3 discovery is likely to be in the range 5 - 10 million Sm³ recoverable oil. A series of small-scale formation tests were carried out, showing promising flow properties. Smaller amounts of oil and gas were found also in basement, but small-scale tests in the basement showed limited flow properties. Apart from the oil and gas bearing reservoirs, no significant shows were seen in the well.

Five cores were cut. The first core was cut in the Lista Formation, the second core covered the transition zones between the Lista, Våle and Ekofisk Formation, the third core was in the Tor Formation, the fourth core was in the Tor and Hod Formation, and the fifth core was in Basement. Four mini-DST runs were performed in the Tor Formation and in the Basement for pressure points and fluid sampling. Oil and water were sampled from the Tor Formation. Gas, oil and water were sampled from the Basement. The following depths were sampled (hydrocarbon type is verified only from chromatographic analyses of the oil phase): 1939 m (water), 1930 m, 1904 m (oil), 1898,1 m (oil), 1896.1 m, 1886.1 m (gas/condensate), 1727.5 m (oil), and 1710 m (water). Due to high draw-down during pumping with the wire line tools, most of the hydrocarbon samples are flashed and not representative for PVT analysis.

The well was permanently abandoned on 15 December as a gas/minor oil discovery and an oil appraisal.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 16/2-4