



## Wellbore History

### GENERAL

Well 17/12-4 was drilled on a crestal location on the 17/12-1 R Bream Discovery in the north-western part of the Egersund Basin in the North Sea. The Bream discovery well, 17/12-1R was drilled in 1972 by Phillips Petroleum. Two more wells (17/12-2 (Brisling oil discovery) and 17/12-3 (dry)) have previously been drilled by Phillips Petroleum on the 17/12 block during the 1970's and early 1980's. Oil was also found in the nearby 18/10-1 well. The primary objectives of all these wells were the Middle Jurassic fluvio-deltaic Bryne Formation sandstones.

The purpose of the 17/12-4 well was to investigate the hydrocarbon potential in reservoirs up dip of the discovery well, in order to make decisions regarding a future development of the Bream Discovery. Planned TD of the well was into the Bryne Formation, at approximately 2440 m TVD MSL.

### OPERATIONS AND RESULTS

Well 17/12-4 was spudded with the semi-submersible installation West Alpha on 17 June 2009 and drilled to TD at 2470 m in the Triassic Skagerrak Formation. Drilling proceeded without significant technical problems. The well was drilled with spud mud down to 1212 m and with Versatec DW oil based mud from 1212 m to TD.

The Vestland Group, Sandnes Formation came in at 2276.5 m, 5.5 m deep to prognosis, while top Bryne Formation was picked at the first coal at 2297.8 m, 10.8 m deep to prognosis. The Sandnes Formation contained some good quality sands with average porosity of approximately 23%, but was water-bearing with only few and weak shows. The Bryne Formation contained several sands of good quality, and was oil-bearing down to a common OWC at 2334.5 m (2316.5 m TVD MSL). Below the main OWC there were further oil bearing sands with possibly three OWC's, but these sands were too thin to provide conclusive pressure data. No shows or other hydrocarbon indications were recorded above or below the Vestland Group.

Pressure data was obtained through Sandnes water bearing sands, and Bryne hydrocarbon and water bearing sands. Two cores were cut, beginning from just above the Sandnes Formation and continuing through to below the Bryne OWC. MDT water and oil samples were taken from main water and hydrocarbon bearing sands in the Sandnes Formation at 2284.81m (water), and in the Bryne Formation at 2308.24 m (oil), 2312.99 m (oil), 2331.00 m (oil), 2331.02 m (oil), 2358.00 m (water), and at 2379.01 m (oil).

The 17/12-4 well bore was plugged back to 13 3/8 casing shoe for sidetracking on 10 July 2009. After sidetracking the well was permanently abandoned on 27 August 2009 as an oil appraisal well

### TESTING

No drill stem test was performed.

## LITHOSTRATIGRAPHY & HISTORY FOR WELL: 17/12-4