



## Wellbore History

### GENERAL

Well 25/10-11 was drilled on the Earb Sør prospect in the Vana Sub-basin west of the Balder Field in the North Sea. The main objectives of the well were to test the hydrocarbon potential of the Late Jurassic sands. The prospect was interpreted as an anomalous thickened Late Jurassic section equivalent to the thinner gas bearing coarse clastics of the Draupne and Heather Formations seen in the 25/7-2 well drilled in 1990. Secondary objective was to evaluate the potential in the Middle Jurassic Hugin Formation. The planned TD was 4461 m.

### OPERATIONS AND RESULTS

Wildcat well 25/10-11 was spudded with the semi-submersible installation Transocean Winner on 22 February 2011 and drilled to 2574 m. Further progress was not possible due to junk in the hole. Two cement plugs were set from TD to

1981 m and the well was sidetracked. The 25/10-11 T2 sidetrack was kicked off at 2010 m and drilled to final TD 4562 m in the Middle Jurassic Hugin Formation. The well was drilled with seawater and hi-vis sweeps down to 210 m, with seawater and Glydril/KCl mud from 210 m to 1041 m, with Versatec OBM from 1041 m to 3935 m, and with WARP OBM mud from 3935 m to TD.

The well penetrated top Draupne Formation at 3991 m. The Draupne Formation rested unconformable on the Early Jurassic Dunlin Group at 4024 m. From this point and down a very complex and unexpected stratigraphic sequence was encountered. The anomalous thickened section proved to be sediments of Early Jurassic age and comprised of lithologies from the Dunlin Group and Statfjord Formation. Furthermore this thickened section was emplaced above younger lithologies of the Heather and Hugin Formations. Hydrocarbons were confirmed from logs and MDT fluid samples at several levels, but no contacts were established and the reservoir properties in the sands were very poor.

The oil based mud produced a background weak dull yellow direct fluorescence and weak blue white cut fluorescence which masked virtually any mineral oil show in the cuttings samples from this well. Core samples were generally low porosity with very weak shows of the type associated with gas condensate. Such shows were found on all three cores.

Three cores were cut in the sidetrack: core 1 and 2 from 4271 m to 4343 m in the Statfjord Formation, and core 3 from 4522 m to 4540 m in the Hugin Formation. Total recovery was close to 100%. MDT wire line fluid samples were taken at 4032 m (oil) and 4141 m in the Dunlin Group (water), 4272.5 m (wet gas) in the Statfjord Formation, and at 4409.5 m (wet gas) in the Hugin Formation. All hydrocarbon samples were contaminated with mud filtrate. The least contaminated sample was the one from 4032 m (6% contamination).

The well was permanently abandoned on 10 August 2011 as a minor oil and gas discovery.

### TESTING

A drill stem test was carried out from perforations over the gross interval 4179 m to 4413 m. Cumulative liquid production during the entire test was approximately 24 Sm<sup>3</sup>. Some gas and hydrocarbon liquid was produced at surface but the final surface liquid flow was still mainly brine with some formation water.

## LITHOSTRATIGRAPHY & HISTORY FOR WELL: 25/10-11