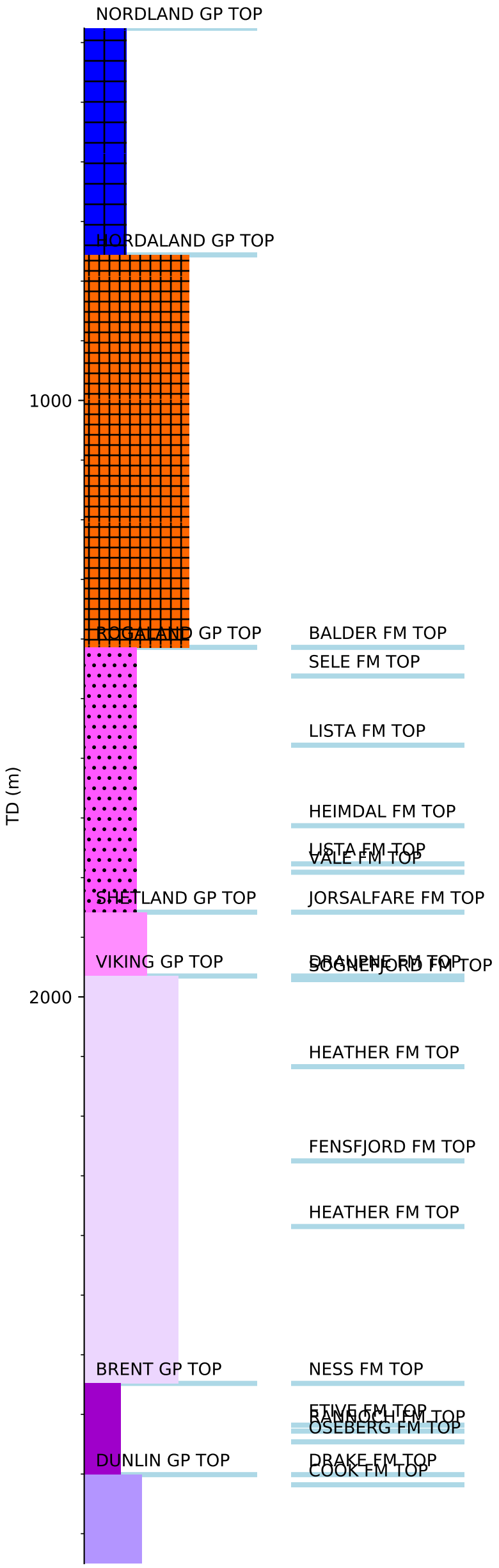
Groups

Formation Tops



Wellbore History

GENERAL

Well 35/11-10 is located on the western edge of the Uer Terrace, ca 9 km North of the Troll Field. It was drilled to appraise the oil and gas discovery made in the exploration well 35/11-4, which encountered hydrocarbons in the Upper Sognefjord Formation separated from an oil column in the Lower Sognefjord Formation, in the Fensfjord Formation, and in the Brent Group. In addition the Utsira Formation was to be cored in order to obtain information about the productivity for injection water.

OPERATIONS AND RESULTS

Appraisal well 35/11-10 was spudded with the semi-submersible installation West Vanguard on 19 May 1997 and drilled to TD at 2950 m in the Early Jurassic Cook Formation. Some problems were encountered with coring in the Utsira Formation. In addition the Utsira Formation was not logged due to a tight spot at 439 m. Otherwise no significant problems were encountered during operations. The well was drilled with spud mud down to 1152 m and with ANCO 2000 glycol mud from 1152 m to TD.

From MWD logs and drilling parameters the Utsira Formation proved not to be developed as a sand reservoir in this location. The well confirmed hydrocarbons in all target levels except for the Etive Formation of the Brent Group. The top Sognefjord reservoir was encountered at 1971 m. The upper part of the Sognefjord Formation was thicker and had better reservoir properties than prognosed. A gas oil contact was identified at 1987 m and an oil water contact at 2011 m. Within the range of uncertainty this was the same OWC as in the well 35/11-4 and there was pressure communication in both the water and the oil zones. The GOC however, differs between the two wells. A total of 14 m of gas pay and 22.6 m oil pay with an average porosity of 27% were encountered. The Lower Sognefjord contained oil and gas with a thin gas cap at 2037 m identified by an MDT sample. The OWC was at 2054 m, which is the same depth as in well 35/11-4. Top Fensfjord Formation was encountered at 2275 m with GOC identified at 2299 m and OWC at 2312 m. The OWC is at the same depth in the two wells with the same oil gradient, while gas is encountered structurally deeper in well 35/11-10. The Brent Group was encountered at 2647.5 m, approximately 30 m deeper than prognosed. Both the GOC (2660 m) and the OWC (2702 m) were identified in the Ness Formation and occurs at different depths compared to well 35/11-4. The Etive Formation was only 10 m thick and water bearing. The Top Etive map, interpreted after drilling, shows that well 35/11-10 was drilled outside structural closure.

A total of 8 conventional cores were cut at different intervals throughout the well. Due to technical problems only one meter core was recovered from the Utsira Formation, otherwise recovery was excellent. Three cores were cut in the Sognefjord Formation, two in the Heather and Fensfjord Formations, and two in the Etive and Rannoch Formations. MDT fluid samples of oil and water were recovered in both the Upper (only oil) and Lower Sognefjord Formation, the Fensfjord Formation and the Brent Group. In the lower Sognefjord Formation also a sample of the 1 metre thin gas cap was taken.

It was decided to make a sidetrack for further appraisal of the Discovery. The well bore was plugged back with 4 cement plugs to 1888 m and a kick off plug from 1350 m a 1100 m. It was permanently abandoned on 23 June 1997 as an oil and gas appraisal well.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 35/11-10