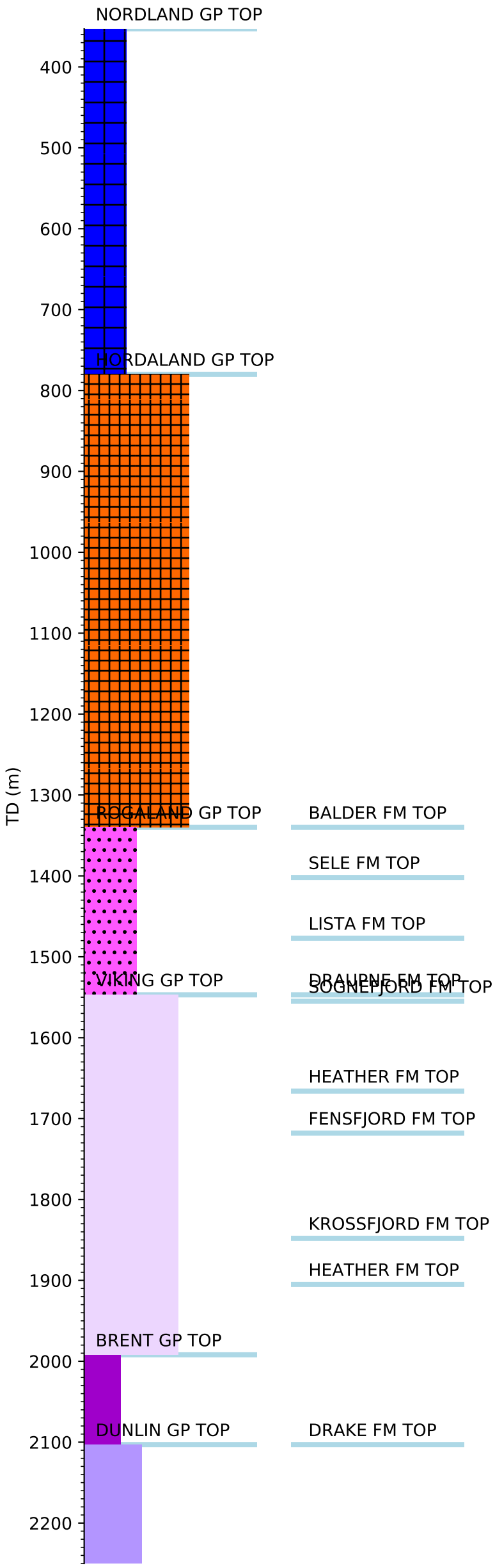
Groups

Formation Tops



Wellbore History

GENERAL

Well 31/5-3 was drilled in the southern part of the Troll West Field. The main objectives were to appraise and test the reservoir qualities and the lithology of the Late Jurassic Sognefjord Formation.

OPERATIONS AND RESULTS

Well 31/5-3 was spudded with the semi-submersible installation Treasure Saga on 10 April 1984 and drilled to TD at 2250 m in the Late Jurassic Drake Formation. At 1426 m circulation was lost, and 450 bbls mud was lost to formation before the well was stabilized. The well was drilled with spud mud down to 950 m, with KCl/polymer mud from 950 m to 1497 m, and with a Pro-wate/NaCl-brine/pro-salt mud from 1497 m to TD.

The well proved the existence of a stratigraphy ranging from Lower Jurassic to Quarternary. The Tertiary and Quaternary sections were mainly composed of claystones, with a minor sand developed in Pleistocene at the base of the Nordland Group. The Jurassic was composed of sandstone and siltstones in the Viking and Brent Groups, and mainly claystone with an interbedded sandstone layer in the Dunlin Group. One major unconformity was found between Early Portlandian and Maastrichtian. Four other unconformities were also observed in the well, from Aalenian to Bathonian, from Early Kimmeridgian to Early Portlandian, from Late Oligocene to Pliocene, and one intra-Oligocene.

The Sognefjord Formation was hydrocarbon bearing with a 39.5 m hydrocarbon column, of which 17.5 m was gas and 22 m was oil. Top reservoir was found at 1555 m, the GOC was at 1572.5 m, and the OWC at 1594.5 m. Oil shows persisted further down, but decreased from 1595 m and disappeared below 1622 m. No other interval in the well was hydrocarbon bearing.

Three cores were cut from 1550 m to 1622.5 m in the Late Jurassic Sognefjord Formation. FMT gas samples were taken at 1557 m and 1567. Three more FMT fluid samples were taken in the oil zone at 1577 m, 1591 m, and at 1592 m.

The well was permanently abandoned on 9 June 1984 as a gas and oil appraisal well.

TESTING

Two drill stem tests were performed in the Sognefjord Formation. Both the intervals were gravel packed. DST # 1 from 1606 - 1610 m produced formation water. DST # 2 from 1582.3 - 1586.3 m produced 1100 Sm3/day of oil with a constant GOR of approximately 55Sm3/Sm3. Gas coning occurred as the rate was increased to 1550 m /day. The GOR stabilized at its original value as the rate was reduced to 1050 Sm3 /day

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 31/5-3