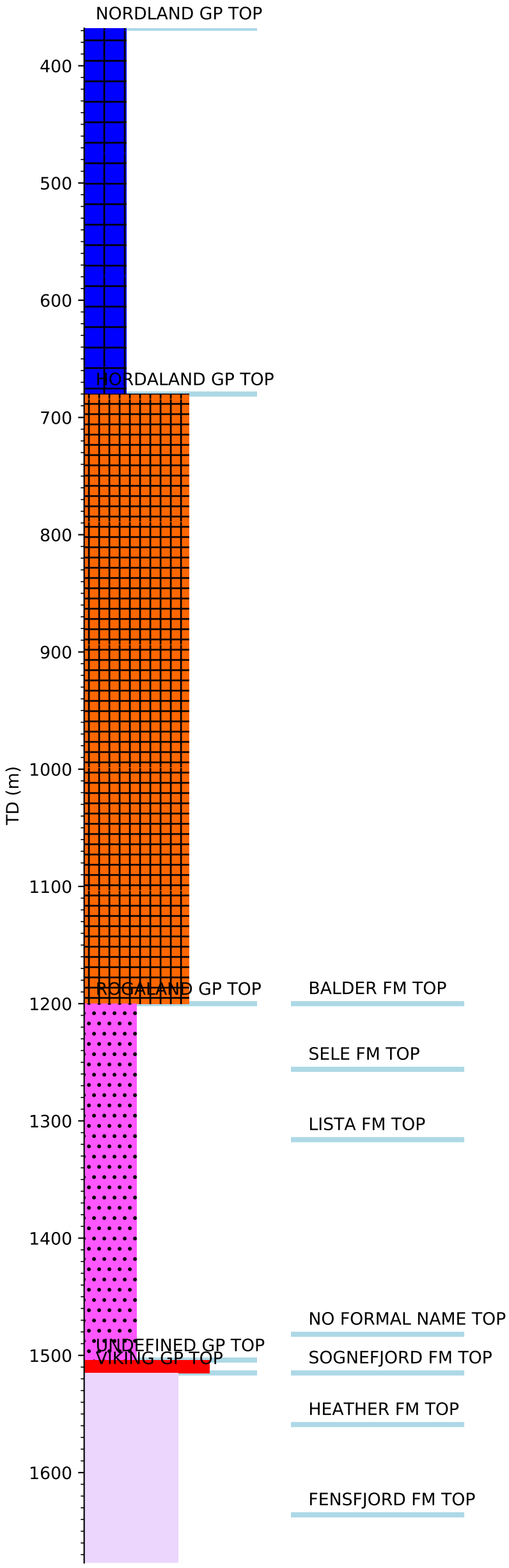
Groups

Formation Tops



Wellbore History

GENERAL

Well 31/2-15 was drilled in the northern part of the Troll West oil and gas province to evaluate reservoir quality and development in the northern part of the Troll West accumulation, and to establish fluid contacts in an undrilled fault compartment.

OPERATIONS AND RESULTS

Appraisal well 31/2-15 was spudded with the semi-submersible installation Borgny Dolphin on 10 September 1984 and drilled to TD at 1677 m in the Middle Jurassic Fensfjord Formation. No major problems were encountered in the operations. The well was drilled with seawater and hi-vis pills down to 810 m, with KCl/polymer mud from 810 m to 1460 m, and with chalk mud (calcium chloride/calcium carbonate) from 1460 m to TD.

Top reservoir was encountered at 1482 m as prognosed, but the age of the upper part was found to be of Paleocene and not Late Jurassic age. The expected Sognefjord Formation came in at 1515 m. The well thus correlate with the situation in well 31/2-18 and 31/2-18 A. Both the Paleocene sand and the Sognefjord Formation sand were gas filled, and the gas continued down to a low permeable micaceous gas/oil transition zone at 1561 m to 1567 m. Testing and sampling proved no mobile oil down to at least 1567 m, and the free oil level was concluded to be very close to the Field-GOC at 1572 m (1547 m SS). The OWC was unambiguously placed at 1583 m, in a highly permeable sand. No shows were recorded above 1482 m or below 1583 m. From petrophysical analysis there were indications of gas saturation in poor quality formation within a 10 m interval below top Fensfjord. However an RFT sample from his interval contained no oil, only gas and brine.

Twelve cores were cut from 1486 m to 1595 m from the lower Paleocene, the Late Jurassic and Sognefjord Formation, and into the Heather Formation. A total of 4 RFT samples were taken. Of these 2 initial failed because of tight formation and seal failure while brine and gas were recovered from the samples at 1637 and 1568 m.

The well was permanently abandoned on 15 November as a gas and oil appraisal.

TESTING

Two tests were performed in the Late Jurassic sequence. Test 1 from 1572 m to 1580 m produced oil at rates up to 570 Sm3 /day. The GOR was 54 Sm3/Sm3 and the oil gravity was 28 deg API. Test 2 from 1564 m to 1567 m had the objective to establish hydrocarbon type in the gas/oil transition zone. It gave initially no flow, but after displacing the tubing content partially to nitrogen a small flow of gas was established (10000 m3 gas/day). The gas contained only trace amounts of condensate.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 31/2-15