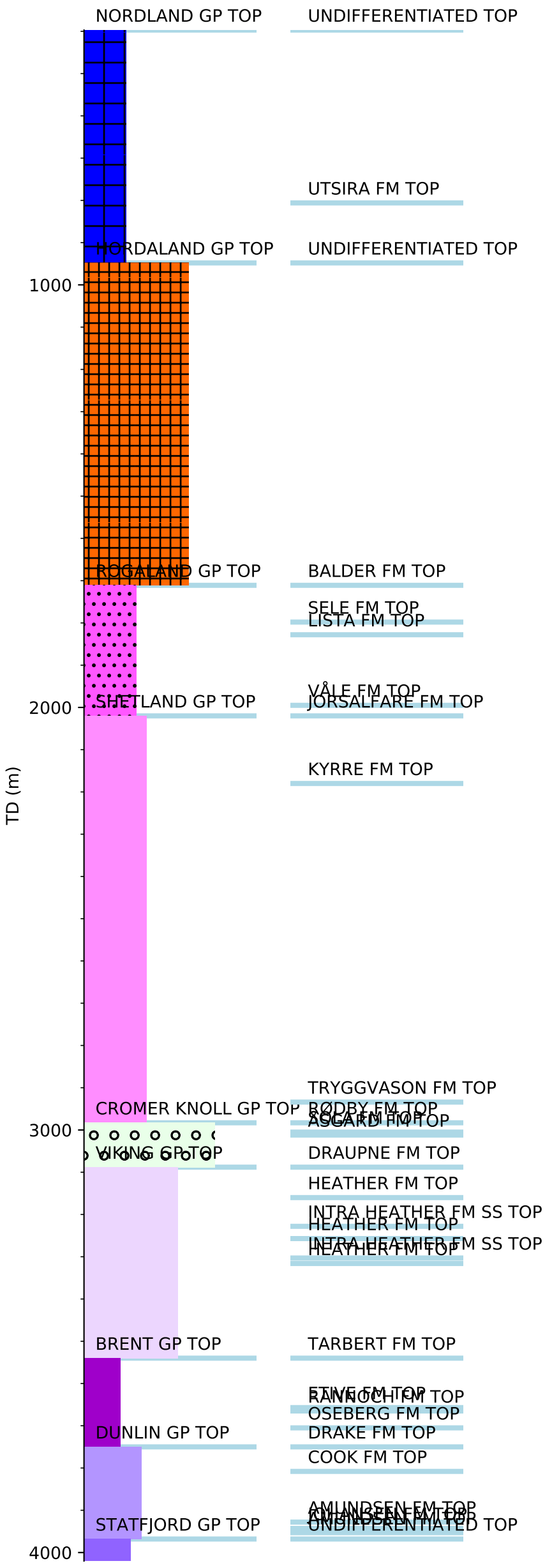

Wellbore History

GENERAL

Well 35/11-18 A is a geological sidetrack to well 35/11-18 on the Marflo Spur/Lomre Terrace, west of the Vega Field in the North Sea. Well 35/11-18 made hydrocarbon discoveries in Intra-Heather Formation sandstone, in the Tarbert Formation and in the Oseberg Formation. The overall objective was to appraise the 35/11-18 Syrah discovery. The primary target was to prove commercial volumes of hydrocarbons in the Tarbert-Upper Ness, Lower Ness-Etive, Oseberg and Cook formations. The secondary target was to penetrate and prove hydrocarbons in the Late Jurassic Intra-Heather Formation sandstone.

OPERATIONS AND RESULTS

Appraisal well 30/11-18 A kicked off from 1775 m in well 30/11-18 on 27 September 2015. It was drilled with the semi-submersible installation Borgland Dolphin to 4020 m (3905 m TVD) in the Early Jurassic Statfjord Group. Technical problems during DST led to a week downtime. Otherwise no significant problem was encountered in the operations. The well was drilled with Innovert oil based mud from kick-off to TD.

Top Draupne Formation was penetrated at 3088 m (3005 m TVD). As in the main bore, clear hydrocarbon shows and increased gas values were seen on penetrating the Late Jurassic Heather Formation. A 35 m thick Intra-Heather Formation sandstone of Kimmeridgian age proved to be gas filled with a GDT. Further, thin Oxfordian aged Intra-Heather Formation sandstones in this formation proved oil-filled. Both Kimmeridgian and Oxfordian sandstones had an average porosity of 13.6 % when using a 10 % cut off. No oil-water contact was established (ODT). Top Brent Group, Tarbert Formation was penetrated at 3540 m (3437 m TVD). All Brent Group reservoirs were oil-filled, as well as the Early Jurassic Cook Formation. Pressure measurements show that all formations have a common aquifer, but with seven different oil gradients in the oil-filled formations, suggesting at least seven pressure compartments. Oil shows on cuttings were described but noted to be uncertain due to the oil based mud. Good continuous oil shows are recorded on the core down to ca 3740 m.

One 53.5 m core was cut with 100% recovery from 3705.5 to 3759.0 m in the Oseberg Formation. The core-log depth shift is +1.54 m. MDT fluid samples were taken at 3590.8 m (oil), 3659.1 m (oil), 3707.9 m (oil), 3737.8 m (water) and 3830.1 m (oil).

The well was permanently abandoned on 16 December 2015 as an oil and gas appraisal well.

TESTING

Two Drill Stem Tests were conducted in this well. DST 1 tested the interval 3804 to 3834 m (3692 to 3722 m TVD) in the Cook Formation. This test produced 520 Sm3/d of oil and 97074 Sm3/d of gas through a 32/64'' choke. The DST temperature was 144.4 °C. PVT analyses gave a total solution GOR at bubble point of 341.7 Sm3/Sm3. Oil density at standard conditions is 0.818 g/cm3.

DST 2 tested the interval 3704 to 3724 m (3594 to 3614 m TVD) in the Oseberg Formation. The test was aborted in the first attempt due to malfunction in the downhole isolation and circulating valve (SLB’s IRDV). The test was re-run as DST 2B. This test produced 856 Sm3/d of oil and 219060 Sm3/d of gas through a 40/64'' choke. The DST temperature was 141.2 °C. PVT analyses gave a total solution GOR at bubble point of 370.2 Sm3/Sm3. Oil density at standard conditions is 0.809 g/cm3.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 35/11-18 A