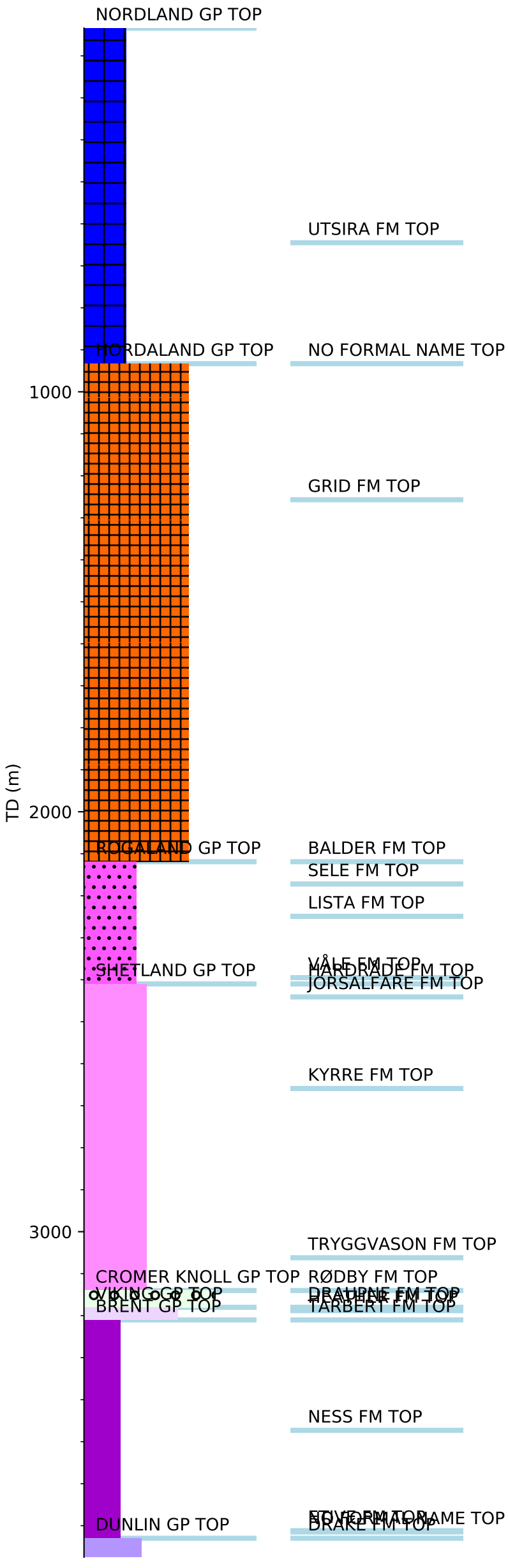

Wellbore History

GENERAL

Well 30/9-19 A is a geological sidetrack to well 30/9-19 on the Delta structure west of the Oseberg Field in the North Sea. Well 30/9-19 found gas and oil in two separately pressured compartments within the Tarbert Formation. The objective of the sidetrack was to test the hydrocarbon potential in the deltaic sands of the Tarbert Formation in the DeltaS1 structure, west of the structure drilled by the primary 30/9-19 well bore.

OPERATIONS AND RESULTS

Appraisal well 30/9-19 A was kicked off from 2322 m in well 30/9-19 on 28 October 1998. The semi-submersible installation West Delta drilled the sidetrack to TD at 3775 m (3632 m TVD) in the Early Jurassic Drake Formation. Drilling proceeded without significant problems using ANCO 2000 mud from kick-off to TD.

Top Tarbert Formation was penetrated at 3210 m (3127 m TVD). The upper part of the Tarbert Formation down to 3277 m (Tarbert 4) is tight with no pay, while the section from 3277 m to 3310 m (Tarbert 3) has only 2 m net pay. The Tarbert 2 main reservoir was penetrated at 3310.5 m (3208.5 m TVD). The gradients from MDT pressure points showed that gas, oil and water are present in the Tarbert 2 reservoir with densities respectively 0.25 g/cc, 0.66 g/cc and 0.99 g/cc. Between the gas and the oil columns there is a carbonate-cemented layer. The gas and oil columns are not in pressure communication and a gas down to is set to 3344 m MD (3235.8 m TVD) and an oil up to at 3347.5 m (3238.7 m TVD). The oil water contact was observed from logs at 3368 m (3255.5 m TVD). The oil column is thus 16.8 m TVD thick. The only oil show outside of the hydrocarbon-bearing reservoir was recorded on sandstone cuttings at 3710 m.

One core was cut from 3300 m to 3342 m in the Tarbert Formation with 98% recovery. MDT fluid samples were taken at 3331.5 m, 3359 m, and at 3442 m.

The well was permanently abandoned on 21 December 1998 as a gas and oil appraisal well.

TESTING

A drill stem test over the interval 3347.4 - 3363.4 m (3238.5 - 3251.5 m TVD) was performed. The test produced at maximum flow 895 Sm3 oil/per day through a 64/64” choke. The GOR was 415 Sm3/Sm3 (solution GOR approximately 210 Sm3/Sm3), the oil density was 0.84 g/cm3, and the gas gravity was 0.71 (air = 1) with 2 % CO2 and 2.5 ppm H2S. Free gas from the gas zone above the test interval is thought to enter the wellbore area through fractures in the carbonate-cemented layer above.

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LITHOSTRATIGRAPHY & HISTORY FOR WELL: 30/9-19 A