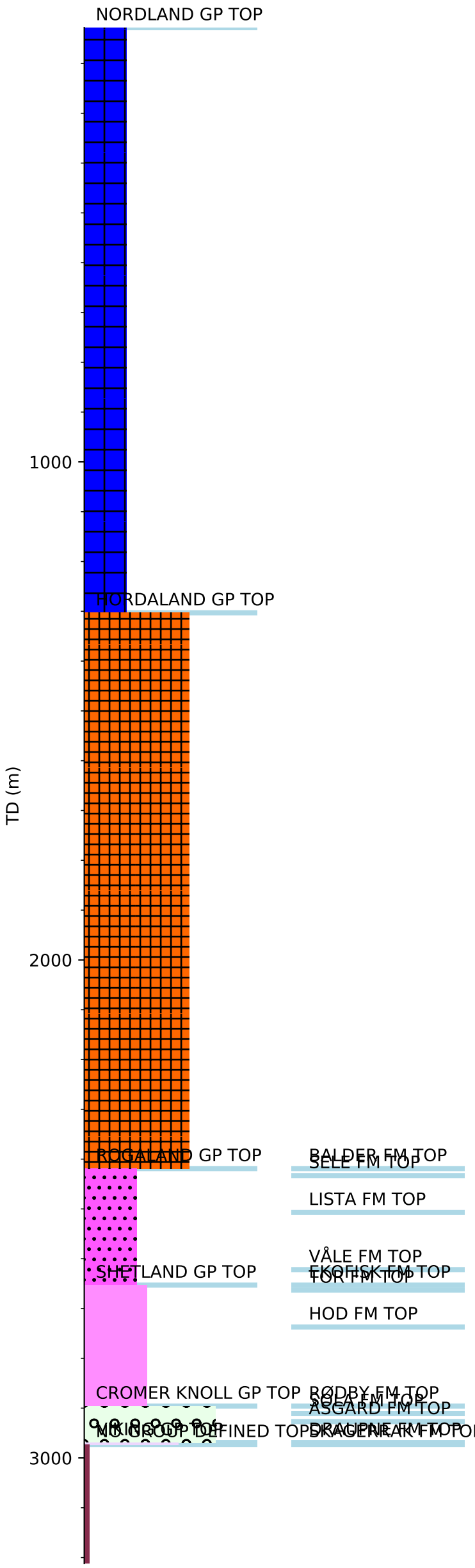
Groups

Formation Tops



Wellbore History

GENERAL

The Pi North well 15/12-19 was drilled on the northern lobe of the Maureen Terrace in the North Sea. The prospect is adjacent to the UK Armada complex of Fields (Fleming, Drake and Hawkins) and the Seymour Fields to the West and the Varg and Rev Fields to the North. The main objective of the well was to test the hydrocarbon potential in Sleipner/Skagerrak sandstone formations in the Pi North structure.

OPERATIONS AND RESULTS

Well was spudded with the jack-up installation Mærsk Guardian on18 February 2008 and drilled to TD at 3212 m in Triassic rocks of the Skagerrak Formation. A 9 7/8" shallow gas pilot hole was drilled from TD in the 36" section at 203.5 m to 672 m. No shallow gas was seen. No significant problem was encountered in the operations. The well was drilled with sea water and pre-hydrated bentonite down to 672 m, with Aquadrill mud from 672 m to 1364 m, and with Carbo SEA oil based mud from 1364 m to TD.

Top Jurassic was encountered at 2969 m and consisted of only 4 m Draupne Formation directly overlying the Triassic Skagerrak Formation. No sediments of the Jurassic Sleipner Formation were encountered. The Skagerrak Formation was hydrocarbon bearing. The sandstones had an average porosity of 17% net when using an 11.8% cut off in the oil case and 8.1% in the gas case. The reservoir system was complex with an upper reservoir with gas down to 2986.8 m (13.8 m TVD gross gas column, 9.21m net pay) and an underlying oil column of 35.7 m TVD gross (13.11m net pay). A lower reservoir with a 16.5 m TVD gross oil-leg (3.81 m net pay) was encountered at 3044.5 m. The two oil zones were separated by a 22 m thick zone of movable water (confirmed by RCI water samples). Pressure data in the different reservoir zones indicated different pressure regimes and varying pressure depletion caused by production from neighbouring fields. No oil shows were observed in the well other than in the Skagerrak reservoir sections.

Three cores totalling 156.69 m were cut with 100% core recovery from 2975.0 to 3131.7 m in the Skagerrak Formation.

RCI wire line fluid samples were taken at 2973.5 m (gas), 2983 m (gas), 2994.5 (oil), 3023.5 m (water/oil mix), 3056.2 m (oil), 3030.1 m (water), 3015 m (oil), and 3117.5 m (water).

The well was permanently abandoned on 20 May as an oil and gas discovery.

TESTING

Three drill stem test were conducted in the Skagerrak Formation.

DST 1A tested the interval 3088 - 3102 m. It produced 318 Sm3 oil and 29450 Sm3 gas /day through a 28/64" choke in the main flow. The GOR was 93 Sm3/Sm3. The bottom hole temperature was 130.8 deg C.

DST 1B tested the intervals 3088 - 3102 m and 3036.5 - 3064 m. It produced 657 Sm3 oil and 156620 Sm3 gas /day through a 44/64" choke in the main flow. The GOR was 239 Sm3/Sm3. The bottom hole temperature was 130.0 deg C.

DST 1C tested the interval 3088 - 3102 m, 3036.5 - 3064 m, and 3023 - 3029 m. It produced 396 Sm3 oil and 831297 Sm3 gas /day through a 56/64" choke in the main flow. The GOR was 2102 Sm3/Sm3. The bottom hole temperature was 127.8 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 15/12-19