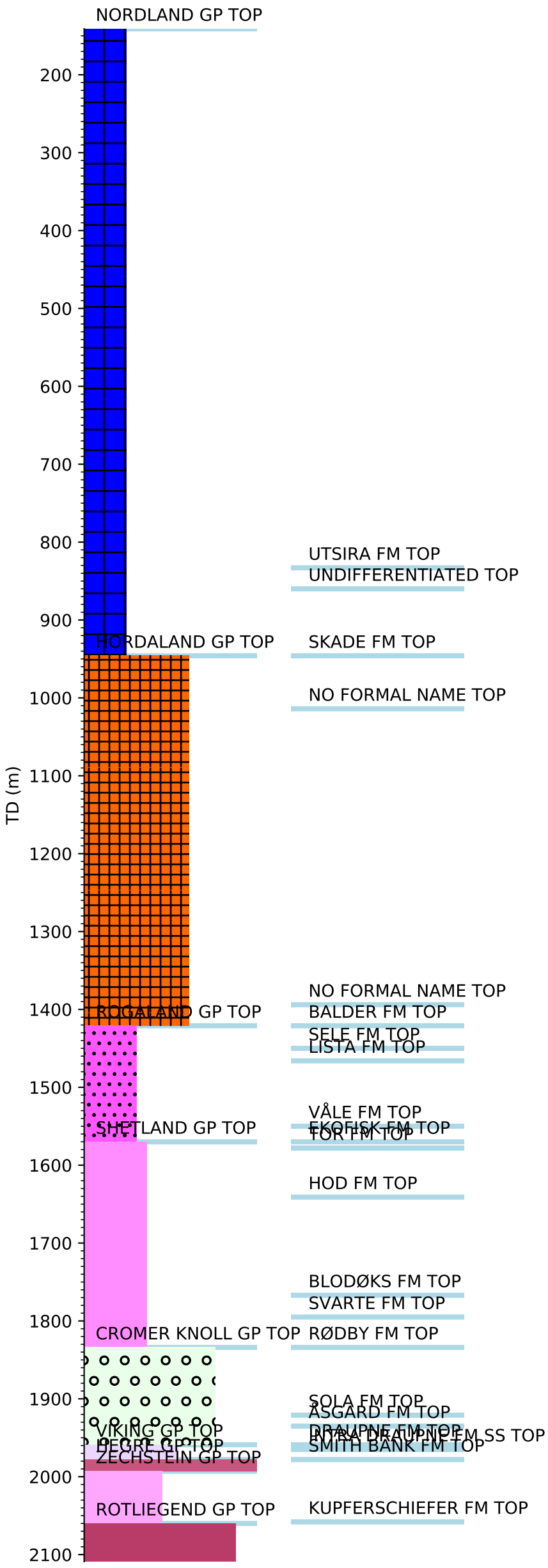
Groups

Formation Tops



Wellbore History

GENERAL

Well 16/3-8 S was drilled on the Avaldsnes High, in the Eastern part of the Johan Sverdrup Field in the North Sea. The well has a crestal position on this part of the Johan Sverdrup structure. The primary objective was to investigate the reservoir properties of the Zechstein Carbonates, including a designed DST for this purpose. A secondary objective was to determine the presence, thickness and quality of the Late Jurassic Intra Draupne Formation sandstones at this location.

OPERATIONS AND RESULTS

Appraisal well 16/3-8 S was spudded with the semi-submersible installation Bredford Dolphin on 1 January 2014 and drilled to TD at 2109 m in the Permian Rotliegend Group. No significant problem was encountered in the operations. The well was drilled with spud mud down to 607 m and Aquadrill mud from 607 m to TD.

A six-meter thick interval of tight Draupne shale was encountered before entering the Volgian Intra Draupne Formation sandstone reservoir at 1964 m (1897 m TVD). The reservoir section consists of 13 meters of Draupne sandstone with excellent reservoir quality and 66 meters of Zechstein carbonates with variable reservoir quality. The carbonate sequence consists of limestone with limited reservoir quality in the upper part and dolomites with moderate to good reservoir quality in the lower part. The reservoir contained a 53 m TVD oil column. The oil/water contact is interpreted at 2021 m (1950 m TVD) based on the interception of the water gradient and the oil gradient from pressure measurements. Oil shows are described throughout the oil-bearing reservoir and down to a depth of 2035.6 m in the dolomitic limestones.

Four cores were cut in succession from 1965 m in the Draupne Formation, through the Intra Draupne Formation Sandstone and the Smith Bank Formation and down to 2035.6 m in the Zechstein Group carbonates. Recovery was good, between 97.2 and 100%. RCX fluid samples were taken at 1965.6 m (oil), 1977.7 m (oil), 2019.5 m (water and oil), and 2037.8 m (water). Single stage separation to ambient conditions gave a GOR of ca 41 Sm3/Sm3 and an oil density of ca 0.894 g/cm3 for both of the two oil samples.

The well was plugged back and prepared for sidetracking on 16 March 2014. It is classified as an oil appraisal well.

TESTING

One production test was performed. The interval 1964.1 - 1979.2 m was perforated and tested. In the main flow, the test produced 803 Sm3 oil and 18900 Sm3 gas through a 52/64" choke. The GOR was 23.5 Sm3/Sm3, the oil gravity was 0.89 g/cm3, and the gas gravity was 0.79 (air = 1). The maximum DST temperature was 82.5 °C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 16/3-8 S