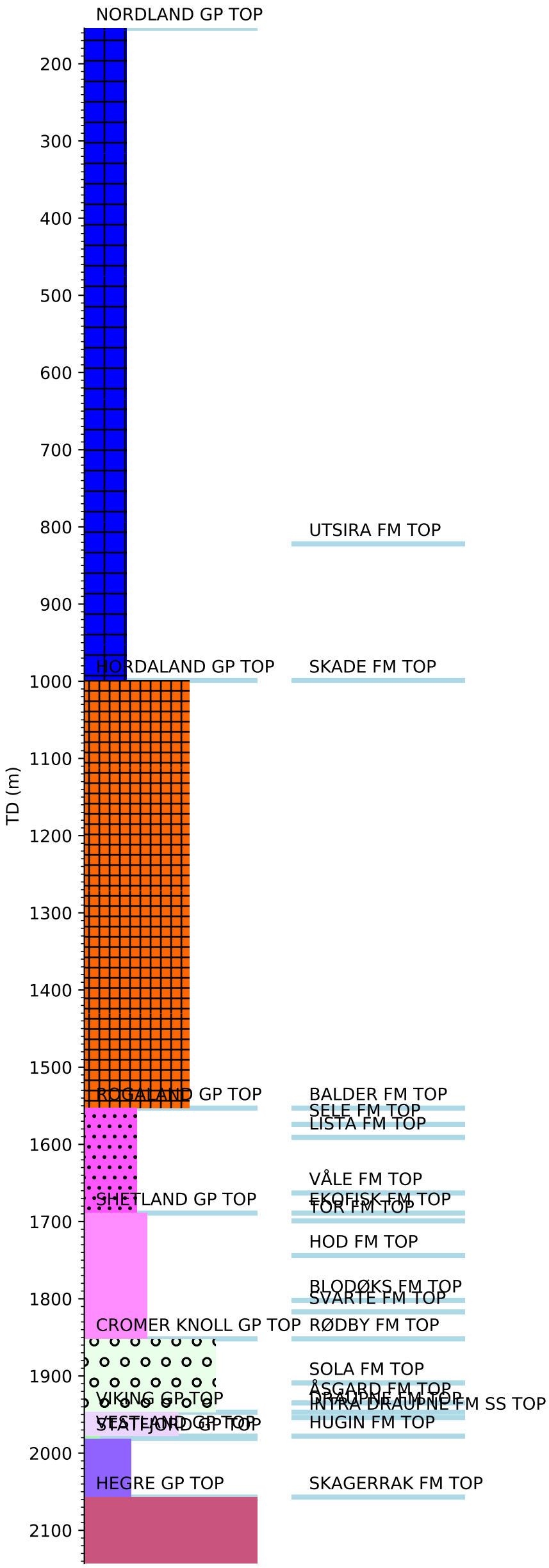
Groups

Formation Tops



Wellbore History

GENERAL

Well 16/2-U-18 was drilled on the Johan Sverdrup Field on the Utsira High in the North Sea. The well objective was to reduce the geological uncertainty in the Espevær North structure in order to place the planned injectors from the E-template in a robust location with regards to sand thickness and FWL.

OPERATIONS AND RESULTS

well 16/2-U-18 was spudded with the semi-submersible installation Deepsea Atlantic on 5 November 2016 and drilled to TD at 2143 m (2139 m TVD) m in the Triassic Skagerrak Formation. Operations proceeded without significant problems. The well was drilled with Seawater and hi-vis pills down to 951 m, with Aquadrill mud from 951 to 1748 m, and with Carbosea oil-based mud from 1748 m to TD.

The Draupne Formation was encountered at 1947 m (1943 m TVD) and constitutes of muddy spiculites. Intra-Draupne Formation sandstone was penetrated from 1954 m (1950 m TVD) to 1978 m (1974 m TVD). A thin Hugin Formation sandstone is between the Viking Group and the Statfjord Group and is in communication with the Viking Group. Shales in the top of the Eiriksson Formation constitutes a pressure barrier. Hence, the pressure gradient in the water in the Intra-Draupne and Hugin sandstones is 0.4 bar higher than in the homogeneous thick sand of the Eiriksson Formation below the shale. These sands have better reservoir properties than the Intra-Draupne Formation sandstone. The Eiriksson Formation sandstone is 1 bar depleted compared to well 16/2-10 reservoir sandstone. This is as expected based on the regional pressure depletion in the area.

Fluid contacts are not conclusive in the well. The deepest possible water up to depth is 1956.5 m where a clean formation water sample was taken. A free water level is weakly indicated by the logs in the homogeneous sand at 1954.6 m, but this cannot be confirmed by pressure data. A paleo-OWC can be interpreted down to 1967 m, but again this is uncertain due to partially missing core at this level.

Shows were present in sandstones in the interval 1988 to 2028 m in the Statfjord Group. They were typically described as poor to moderate to strong hydrocarbon odour, no to even stain, poor streaming cloudy cut fluorescence white stain, yellowish gold occasionally bluish gold even bright direct fluorescence, moderately streaming becoming strongly cloudy cut fluorescence, spotted residual fluorescent ring, brown patchy residual ring.

The interval from 1937 to 2077 m was cored in seven cores with variable recovery from 29.71% in core 3 to 100% in cores 5 and 7. Water samples were taken with the RCX tool at 1956.5 m, 2020.5 m and 2046.5 m.

The well was permanently abandoned on 28 November 2016.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 16/2-U-18