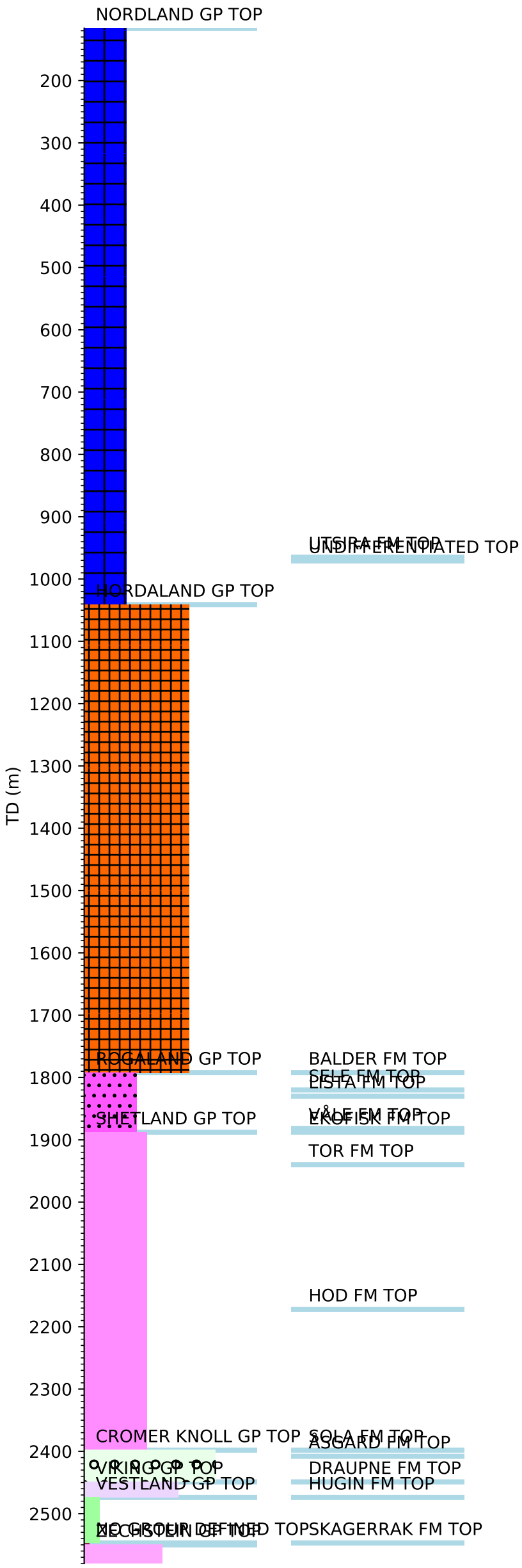
Groups

Formation Tops



Wellbore History

GENERAL

Well 16/10-4 was drilled on the Trond prospect located in the northeast part of PL 101, which is southeast of the existing Sleipner field. The prospect was a north-south elongated salt-induced structure with dip closure in all directions. The main purpose was to test the hydrocarbon potential within the upper Jurassic (Hugin) formation in the prospect and to obtain representative cores of that sand package.

OPERATIONS AND RESULTS

The jack up installation "Transocean Nordic" arrived on location on June 25 1998. Spud was significantly delayed due to insufficient leg penetration. Gravel boats had to be employed to dump gravel around the spud cans. This operation took 141 hours. With the gravel dumping completed, the weather became rough and the spud cans could not be lifted according to the plan. It took 162 hours before the weather was sufficiently calm to proceed with the pre-loading. Exploration well 16/10-4 was finally spudded on July 11 1998 and drilled to a total depth of 2580 m in Permian Zechstein anhydrites. The well was drilled with seawater and bentonite sweeps down to 380 m, with KCl / PAC mud from 380 m to 1230 m, and with KCl /PAC / glycol mud from 1230 m to TD.

All the formations encountered from top Balder were found above prognosis due to anomalous velocities in the gas chimney drilled by this well. The reservoir target (Hugin Formation) was encountered at 2474 m. (80 m below prognosis). The petrophysical properties of the reservoir were found to be good. The only interval with some gas shows was the Rogaland Group (1792-1888 m) where the total gas was between 2.6 and 4.4 % Ci-nC4, but no reservoir was encountered at this level. No direct shows were observed in the Hugin Formation and the total gas was below 0.1%. From FMT measurements, log analysis and all the information collected during the drilling phase, the reservoir was found to be water bearing. However, onshore geochemical analysis by Eni central laboratories in Milan reported significant traces of migrated hydrocarbons in core samples from 2478 to 2496 m and high levels of phenols with possible traces of altered oil in the FMT water sample.

One core was cut from 2477 to 2504 m in the soft, unconsolidated Hugin Formation (Previous wells in the area suffered no core recovery). The median porosity of the core was 25% and the median permeability was 260 m. Eight FMT pre tests and one segregated sample were taken from the Hugin reservoir. All pressure tests were good and gave a clear water gradient of 0,102 bar/m in the reservoir. The sample recovered was a mixture of mud filtrate and formation water.

The 16/10-4 well was permanently abandoned on 10 August as a dry well.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 16/10-4