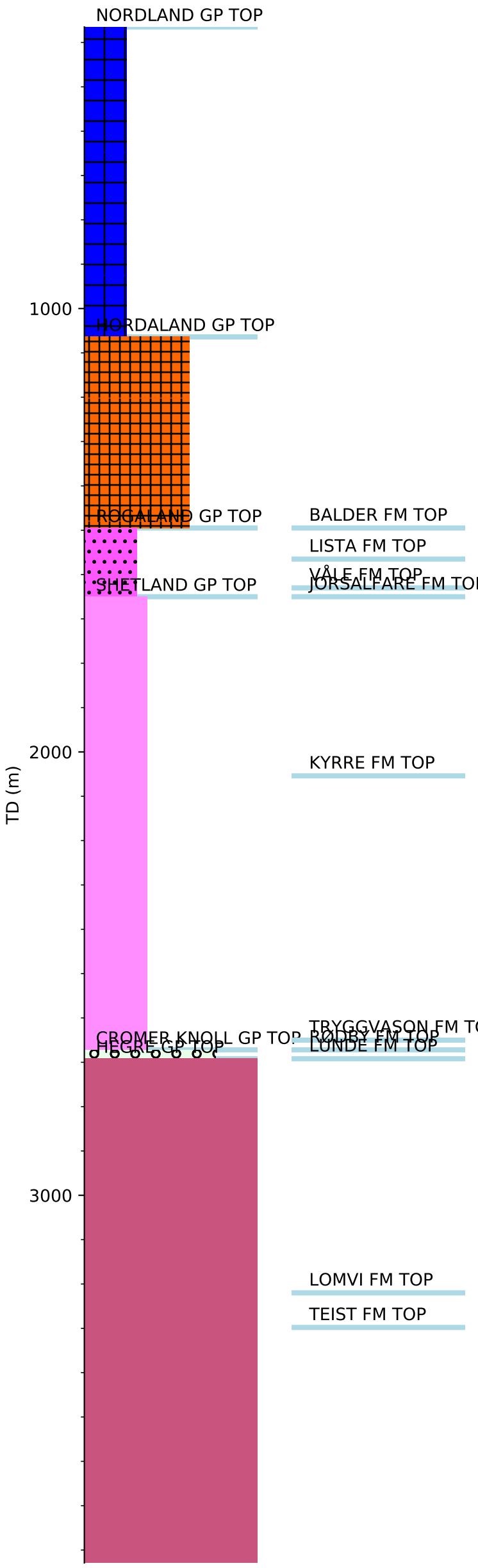
Groups

Formation Tops



Wellbore History

GENERAL

The objective of the well, located on the Makrell horst on the northern margin of the East Shetland Basin, was to test two possible sandstone reservoirs of Triassic and Permo-Triassic age respectively. The first of these reservoirs was prognosed to be an Early Triassic massive sandstone reservoir. Correlation with the U.K. well 211/13-1 indicated that this sandstone could be divided into two main sequences both with increasing silt and clay content in the lower parts. These sands were thought to be deposited in a braided alluvial system. The second was prognosed to be Permo-Triassic fluvial sandstone similar to the higher reservoir but separated from it by lacustrine or lagoonal shales, marls and limestones. The well was planned to reach total depth below a seismic marker at approximately 3825 m.

Well 33/5-1 is reference well for the Triassic Teist and Lomvi Formations.

OPERATIONS AND RESULTS

Wildcat well 33/5-1 was spudded with the semi-submersible installation Treasure Seeker on 19 July 1979 and drilled to TD at 3829 m in the Early Triassic Teist Formation, interpreted to be close to the seismic "A" marker. A gas leakage from a shallow gas zone at 480 m to 490 m between the 20" and 30" casing was observed sporadically throughout drilling of the well. The leakage was stopped when the gas zone were squeezed off with cement during abandonment of the well. An 18 1/2" hole was first drilled to 1516 m. When pulling out of the hole the string got stuck at 1226 m and the well was sidetracked from 1019 m to 1071 m. Logs are from the sidetrack. Further drilling went without significant problems. The well was drilled with seawater/bentonite/CMC down to 1540 m. Diesel and lubricants were added to the mud when attempting to free the stuck pipe. A lignosulfonite/lignite mud was used from 1540 m to TD.

A sequence of interbedded limestones of Early Tertiary to Late Cretaceous age (Late/Middle Paleocene-Maastrichtian) revealed fair hydrocarbon shows when penetrated. Wire line log interpretations and RFT runs found, however, these limestones to be poor reservoir rocks and to contain residual hydrocarbons only. The Jurassic was absent in the well. Early Cretaceous sediments (Albian age Rødby Formation) were found resting unconformably on the Triassic Lunde Formation. Well 33/5-1 penetrated a 1137 m thick sequence of Triassic rocks. Good sandstone reservoirs were found, but no significant hydrocarbon shows were encountered. A single conventional core was cut from 3066 m to 3076.4 m in the Lunde Formation. Four RFT runs were made for pressure recordings and evaluation of the Lower Tertiary-Upper Cretaceous limestones and the Triassic sandstones. For the Lower Tertiary-Upper Cretaceous sequence, no reliable data were obtained due to tight formations or tool seal failure. The RFT recordings for the Triassic sandstones gave a pressure gradient of 0.11 bar/m (0.48 psi/ft) indicating water-bearing reservoir. Only mud filtrate was recovered from RFT samples taken at 1675 m and 2747.5 m.

The well was permanently abandoned as dry on 18 October 1979.

TESTING

No drill stem test was performed

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 33/5-1