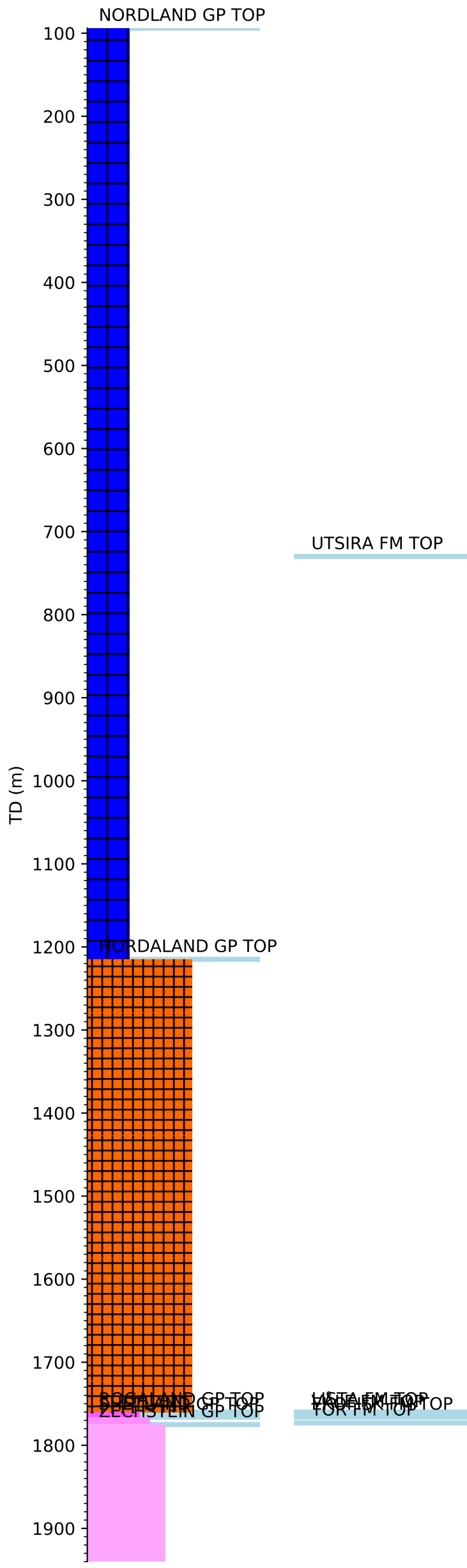
Groups

Formation Tops



Wellbore History

GENERAL

Exploration well 2/8-13 was designed to test the Tertiary and Upper Cretaceous chalks overlying a salt induced domal feature, unofficially named Mode, in the western part of block 2/8. The objectives were to test the possible hydrocarbon accumulation contained within the Tertiary and Upper Cretaceous chalks of the Ekofisk, Tor and Hod Formations; to determine the reservoir quality of the Shetland Group over the structure; to determine the chalk stratigraphy over the Mode salt dome; and to acquire a VSP to help to image the chalk distribution and thickness over the Mode feature.

The well was planned to penetrate the Shetland Group on a structurally high at the northern flank of the Mode salt feature. Shallow gas was expected at 507- 590- and 730 m.

OPERATIONS

Wildcat well 2/8-13 was spudded with the semi-submersible installation Dyvi Stena on 28 April 1989 and drilled to TD at 1940 m in the Permian Zechstein Group. The well was drilled with seawater / gel / polymer down to 380 m, with PHPA/PAC mud from 380 m to 1253 m, with PHPA/PAC/ANCOMEL mud from 1253 m to 1457 m, with PHPA/PAC/NaCl mud from 1457 to 1758 m, and with NaCl/PAC mud from 1758 m to TD. Shallow gas was encountered at the prognosed depths, and controlled with heavy mud. Shallow gas encountered in sands at 828 m, caused the well to flow. The flow was killed with heavy mud, and caused no injuries or damages. The drill pipe got stuck, and had to be shot of above the BHA, which than was cemented in. The well was kicked off for the 2/8-13 sidetrack at 412 m.

The Paleocene section was thinner than expected, with Balder Sele and part of the Lista Formations missing. The gas cloud above the structure caused some difficulties as to predicting formation depths and velocity correlations across the structure. The well drilled directly from Upper Cretaceous to Permian rocks. The Shetland Group came in 220 m higher than prognosed and was 9.5 m thick, compared to prognosed 270 m. No biostratigraphic evidence for the Hod, Blodøks, or Hidra Formations was found, nor of the Lower Cretaceous, Jurassic, or Triassic rocks. Shows were observed on cuttings and sidewall cores throughout the well below 700 m. An unexpected section of Celestite (strontium sulphate) was on top of the Anhydrite section. One core was cut from 1780 m to 1782 m in the Celestite section with poor reservoir quality. Good shows were recorded on the core. After having cut the core, the well became unstable and was killed and cemented back to 1415 m and an unintentional sidetrack was made. The Paleocene section came in 10 m deeper in the redrilled hole. No fluid sample was taken in. Well 2/8-13 was permanently abandoned 22 June 1989 as a dry hole with oil and gas shows.

TESTING

No drill stem test was performed

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 2/8-13