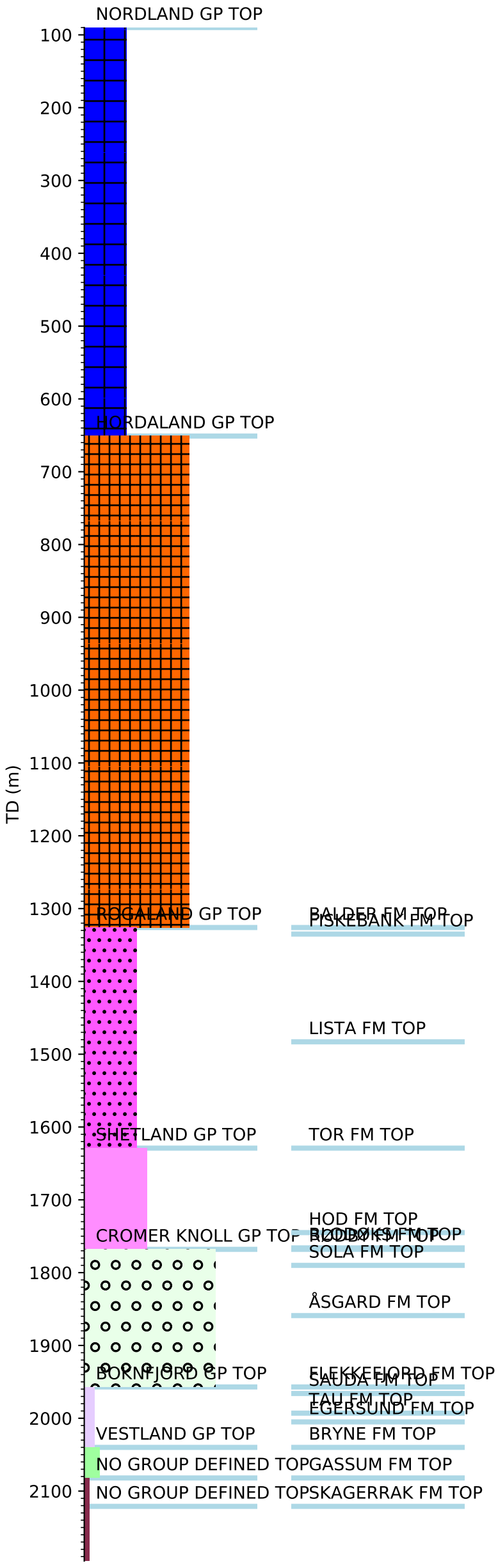
## Groups

## Formation Tops




## Wellbore History

GENERAL

Well 9/11-1 is situated in the Åsta Graben in the Danish-Norwegian Basin in the North Sea. The purpose of the well was to test the hydrocarbon and reservoir potential of Triassic to basal Tertiary sediments over a north-south elongated salt dome. The Jurassic - Triassic sandstones were the primary objective, with the Late Cretaceous - Danian carbonates and Palaeocene sandstones as secondary objectives.

The well is Type Well for the Late Paleocene Fiskebank Formation

OPERATIONS AND RESULTS

Wildcat well 9/11-1 was spudded with the semi-submersible installation Transworld 61 on 3 July 1971 and drilled to TD at 2196 m in the Late Triassic Skagerrak Formation. The 26" section was first drilled with a 17 1/2" bit to 412 m using gel/seawater mud. The hole was then under-reamed to 26" to 411 m. The 26" bit was run in hole but could not get past 119 m. When reaming was attempted, circulation was lost at 127 m. The hole was then re-drilled to 412 m with a 17 1/2" bit and opened to 26" with no problems. The 20" casing was run and cemented at 378 m. Eleven days were used on this interval and 700 bbl mud lost to seabed. The remaining well was drilled without significant problems. The well was drilled with seawater and hi-vis pills to 127 m, with seawater and gel from 127 m to 412 m, and with seawater / lignosulphonate (Spersene) and 1 -6 % diesel from 412 m to TD.

The well drilled a thick Tertiary-Quaternary section (approx. 1600 m), composed mainly of Oligocene-Miocene brown-grey clays and Pliocene-Pleistocene grey sandy clays. The Eocene (Lower part) is represented by green clays overlying varicoloured Paleocene clays without sands. There was a thin chalk, all of Late Cretaceous age (Tor Formation). No Danian was present. The Early Cretaceous was represented by a condensed sequence ranging from Valanginian to Aptian/Albian. From 1766 m to 1993 m there was a series of transitional Early Cretaceous to Late Jurassic beds, the main part of which was presumably deposited during the Late Kimmeridgian. Darker clays with Kimmeridgian faunas were drilled from 1966 m to 2040 m, followed by black shales and sands with coal of Middle Jurassic age from 2040 m to 2082 m. The basal section was represented by red shales, siltstones, and sandstones (Gassum and Skagerrak Formations). All targets proved to be water bearing. Occasional spots of dark brown tarry oil were encountered in the Middle Jurassic sandstones in the recovered part of core 2 and in a sidewall core at 2078 m. A very weak fluorescence was observed locally from the sandstone in core 2 but there was no cut. No fluorescence or cut was seen in the sidewall cores. Organic geochemical analyses proved an immature well all through. Top oil window maturity is suggested at ca 2500 m, below TD. Source rocks are restricted to Late Jurassic shales (best in Tau and Egersund Formations), an in coals and shales of the Bryne Formation.

Two conventional cores were cut. Core 1 was cut from 1981.2 m to 1990.3 m and core 2 from 2042.8 m to 2061.1 m. Two FIT fluid samples were taken at 2077 m and 1632 m. Both recovered salt water.

The well was permanently abandoned on 19 August as a dry hole.

TESTING

No drill stem test was performed.

# LITHOSTRATIGRAPHY & HISTORY FOR WELL: 9/11-1