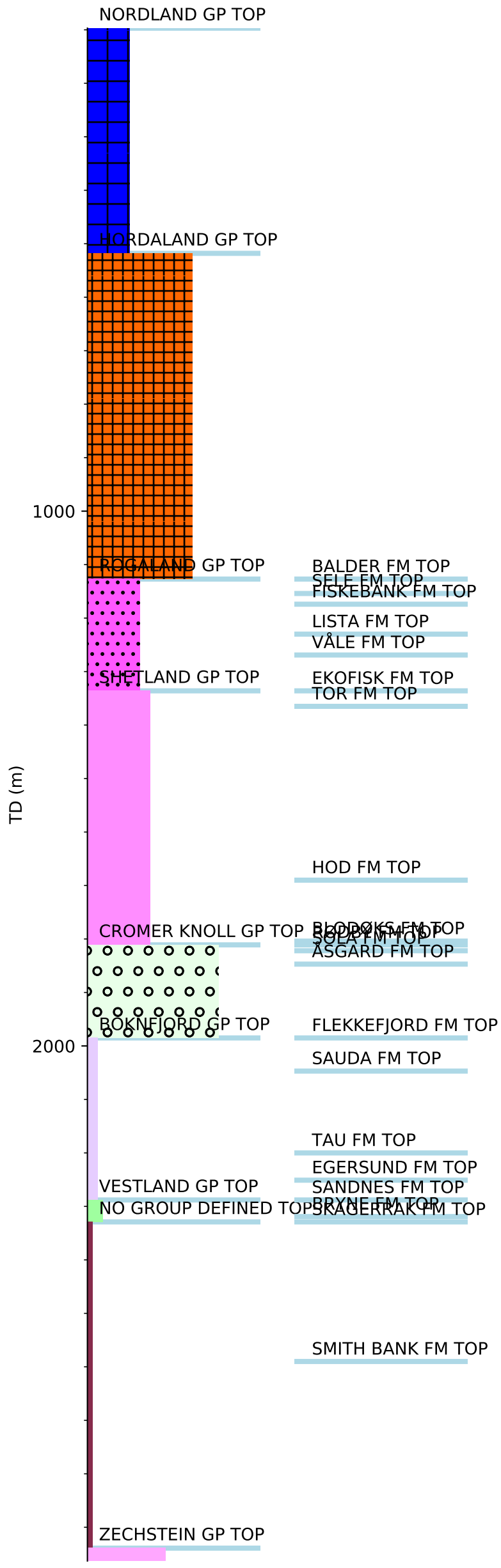
Groups

Formation Tops



Wellbore History

GENERAL

Well 9/4-1 is situated northeast in the Åsta Graben in the Danish-Norwegian Basin. The chosen well location allowed multiple Tertiary to Mesozoic prospects to be tested. The primary objectives of 9/4-1 were Middle Jurassic and Early Triassic (Bunter) sandstones, while basal Tertiary and Early Cretaceous sandstones and Late Cretaceous limestones were secondary objectives.

The well is Type Well for the Egersund Formation.

OPERATIONS AND RESULTS

Wildcat well 9/4-1 was spudded with the jack-up installation Endeavour on 31 Marc 1968 and drilled to TD at 2963 m in Late Permian Zechstein salt. Three casing strings were set in the hole. Seawater was used as drilling fluid down to 1106 m, from where an XP-20 lignosulphonate type mud was used. When the drilling commenced after the 30" conductor pipe was set, several drilling problems arose. The circulation was lost, and the hole fell in repeatedly, so the conductor pipe had to be re-driven and cemented several times until the hole conditions allowed the 20" casing to be set. At 2963 m the drill pipe stuck in salt, and after five days of unsuccessful fishing operations, it was decided to abandon the hole. The lower part of the hole could not be logged due to the unrecovered fish.

Twenty-five net meter of Jurassic sandstone was penetrated in a sand body (Sandnes Formation) at 2288 m. The section was water wet, but fair shows were logged in the upper 5 m of the sand. The remainder had very scattered poor shows. Porosity averaged 25 percent and examination of sidewall cores indicated a clean permeable sandstone reservoir. The second primary objective, the Bunter Sandstone, was represented by an estimated 60 m of thin interbedded sands and sandstones scattered throughout a thick Triassic section composed predominantly of silty red brown to pastel claystones. Due to lack of logs the interpretation of the Triassic section is somewhat tentative. Late Cretaceous Chalk and Early Cretaceous sandstones proved non- productive due to either the absence of the predicted lithologies or the non-development of reservoir properties in the sediments present. There were no shows in the Triassic or in the secondary target sections. Organic geochemical analyses show excellent source properties in the Late Jurassic Tau Formation with 6 - 7 % TOC and hydrogen index around 250 mg HC/g TOC. Colas and shale in the underlying Vestland and Bryne Formations also show good source potentials. Vitrinite data indicate top oil window maturity already at ca 2000 m.

No conventional cores were cut. Sixty-nine out of 73 attempted sidewall cores were retrieved over the interval 2196 m to 2415 m in the Jurassic and Triassic sections. No fluid samples were taken.

The well was permanently abandoned on 19 May 1968 as a dry hole with shows.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 9/4-1