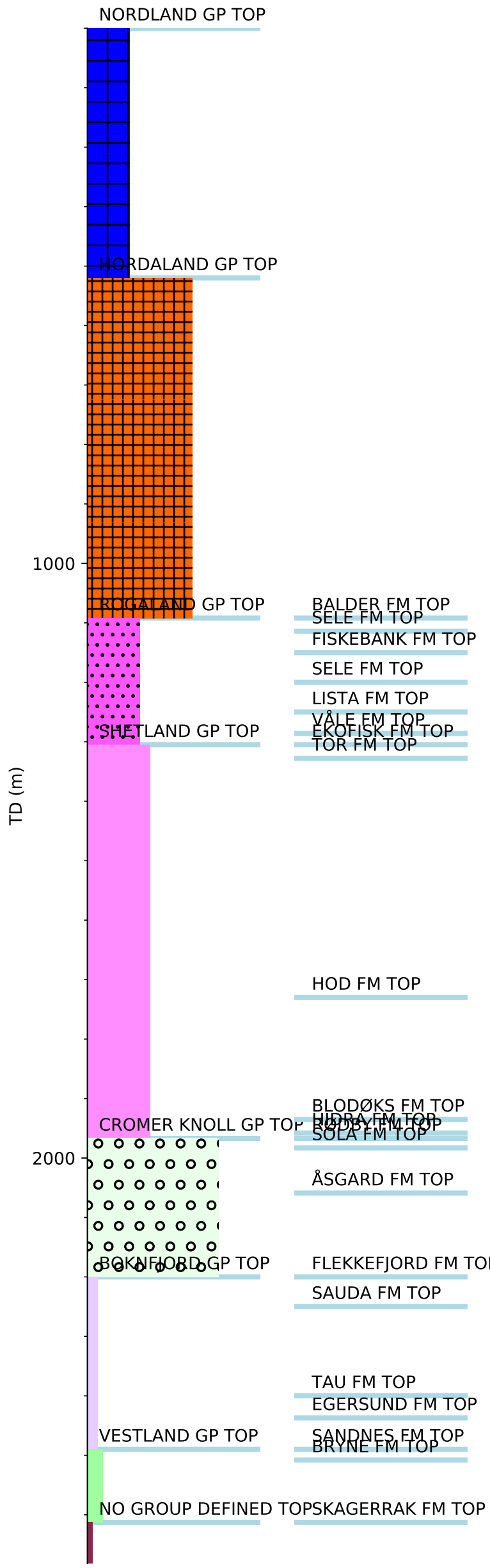
Groups

Formation Tops



Wellbore History

GENERAL

Well 9/4-3 was drilled on a salt-induced, anticlinal structure in the Egersund Basin in the North Sea, 17 km to the east of the 9/4-1 location. The primary objective was the Middle Jurassic sandstone, but also Triassic sands were considered prospective. Danian and Late Cretaceous chalks were seen as secondary objectives.

The well is Type Well for the Jurassic Bryne, Sandnes, Tau, and Sauda Formations in the Norwegian-Danish Basin.

OPERATIONS AND RESULTS

Wildcat well 9/4-3 was spudded with the jack-up installation Ocean Tide on 14 July 1972 and drilled to TD at 2682 m in Late Triassic sediments of the Skagerrak Formation. The hole was drilled without significant drilling problems, although heaving shales in the lower Tertiary caused some difficulties. After drilling out the 20" casing shoe at 404 m the drilling fluid was changed from a gelled seawater gel to a lignosulphonate seawater mud system, which was used to TD.

The only sandy Formation encountered above the Jurassic level was the Late Paleocene Fiskebank Formation at 1150 m, with a 50 m thickness. A complete sequence of Early Cretaceous stages was present between 1967 and 2250 m. The Kimmeridge section also appeared complete and represented entirely by an argillaceous succession. No sandy facies of Early Kimmeridgian/ Late Oxfordian was detected. The Bathonian-Bajocian sandstone/shale sequence between 2490 m to 2613 m (the Vestland Group) is comparable with adjacent wells in the area although clearly thicker in the current section. No oil shows were recorded in any section of the well during drilling and the logs confirmed that the Jurassic and Triassic sections were water wet.

From organic geochemical analyses source rocks were found in shales of the Late Jurassic Tau and Egersund Formations, and the coals of the Middle Jurassic. The 37 m thick Tau Formation at 2400 m contained an average kerogen type II/III with TOC around 5% and has a rich potential for generation of oil and gas. The Egersund Formation has mainly kerogen type III, TOC in the range 0.5 to 2.5 % and has a good gas potential. The Middle Jurassic coals are believed to have potential for mixed to gaseous hydrocarbons. The geochemical analyses confirmed a well barren of migrated hydrocarbons, with only traces of very early generated in-situ hydrocarbons in late Jurassic shales and Middle Jurassic coals. The well was found immature all through, reaching a vitrinite reflectance of 0.4 % Ro at TD. No conventional cores were cut and no fluid sample taken.

The well was permanently abandoned on 19 August 1972 as a dry hole.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 9/4-3