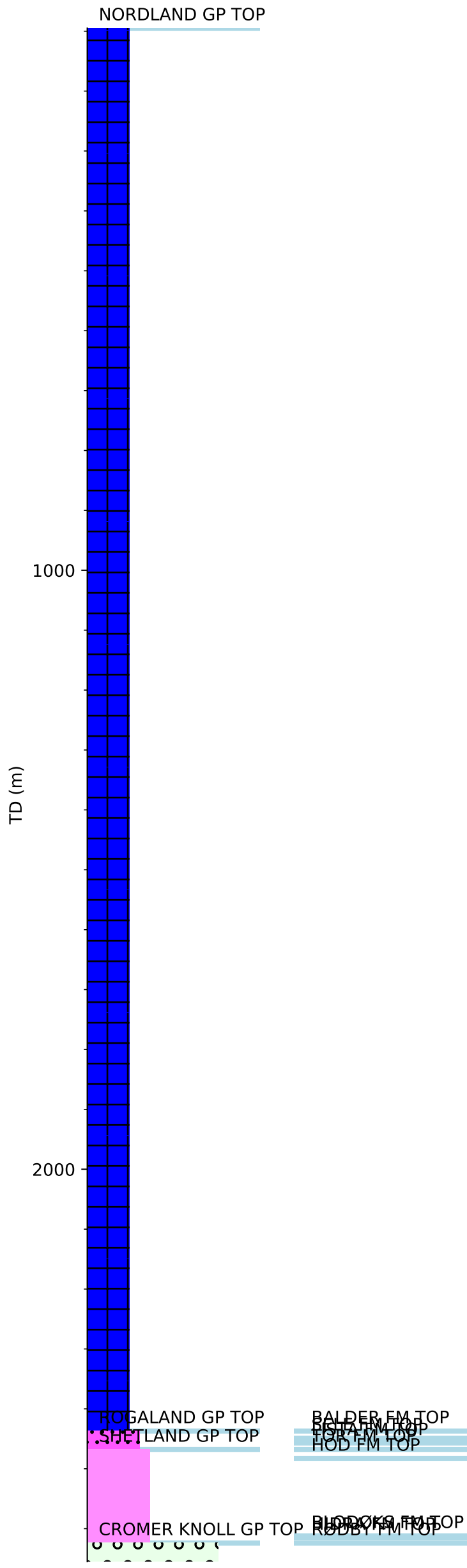
Groups

Formation Tops



Wellbore History

GENERAL

Well 2/8-11 was drilled as a field delineation well intended to help establish the commerciality of the southern North Sea Valhall Field, which was discovered by well 2/8-6 and confirmed by wells 2/8-8, 2/8-9 and 2/8-10. The primary objective was to test the Late Cretaceous chalk reservoirs and to estimate the presence of hydrocarbons.

OPERATIONS AND RESULTS

Appraisal well 2/8-11was spudded with the semi-submersible installation Ross Rig on 10 August 1976 and drilled to TD at 2655 m in the Early Cretaceous Rødby Formation. The well was drilled in a total of 33 days without any major drilling problems. However, 13 days were spend on logging in the 12 1/4-inch hole and setting and cementing two completion strings comprising of a 7-inch liner cemented inside the 9 5/8-inch casing. The well was drilled with seawater/bentonite/caustic soda down to 381 m, with Drispac/Dextrid/lignosulphonate mud from 381 m to 1294 m, and with Drispac/Dextrid/lignosulphonate/Soltex mud from 1294 m to TD.

The well penetrated a normal Quarternary-Tertiary sequence with the top Paleocene Ash Marker at 2437 m, 51m lower than predicted. The Late Cretaceous Maastrichtian chalk (Tor Formation) was encountered at 2468 m with a total thickness of 15 m and with an oil column of the same magnitude. The porosity was 40-50% and the water saturation close to zero. The two Coniacian-Turonian reservoirs, (upper and lower Hod Formation) had porosities of 30-40% and water saturations averaging 50% with 18.5 m pay in the upper reservoir and 33.5 m pay in the lower reservoir. The Turonian shale was penetrated at 2612 m and the top of the Early Cretaceous was reached at 2624 m giving a total chalk thickness of 144 m.

Two cores were cut in the Tor Formation from 2477 m to 2489 m. No wire line fluid samples were taken.

The well was permanently abandoned on 11 October 1976 as an oil appraisal.

TESTING

Two tests were performed in the well. Both test intervals were fractured using the Kiel water-frac process. The tests produced water/oil emulsions that broke up in the separator.

DST 1 tested the productivity from 2553 to 2560 m in the lower Hod Formation, both before and after fracturing. Before fracturing the well produced 63 Sm3 oil /day through a 5/8" (15.9 mm) choke. The GOR was 167 Sm3/Sm3, oil gravity was 36 deg API and gas gravity was 0.826 (air = 1). After fracturing the well produced 385 Sm3 oil /day through a 1/2" (12.7 mm) choke. The GOR was 267 Sm3/Sm3, oil gravity was 38.5 deg API and gas gravity was 0.685 (air = 1).

DST 2 tested the productivity from 2469 to 2476 m in the Tor Formation. After fracturing the well produced 826 Sm3 oil /day through a 1/2" (12.7 mm) choke. The GOR was 253 Sm3/Sm3, oil gravity was 37.5 deg API and gas gravity was 0.672 (air = 1).

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 2/8-11