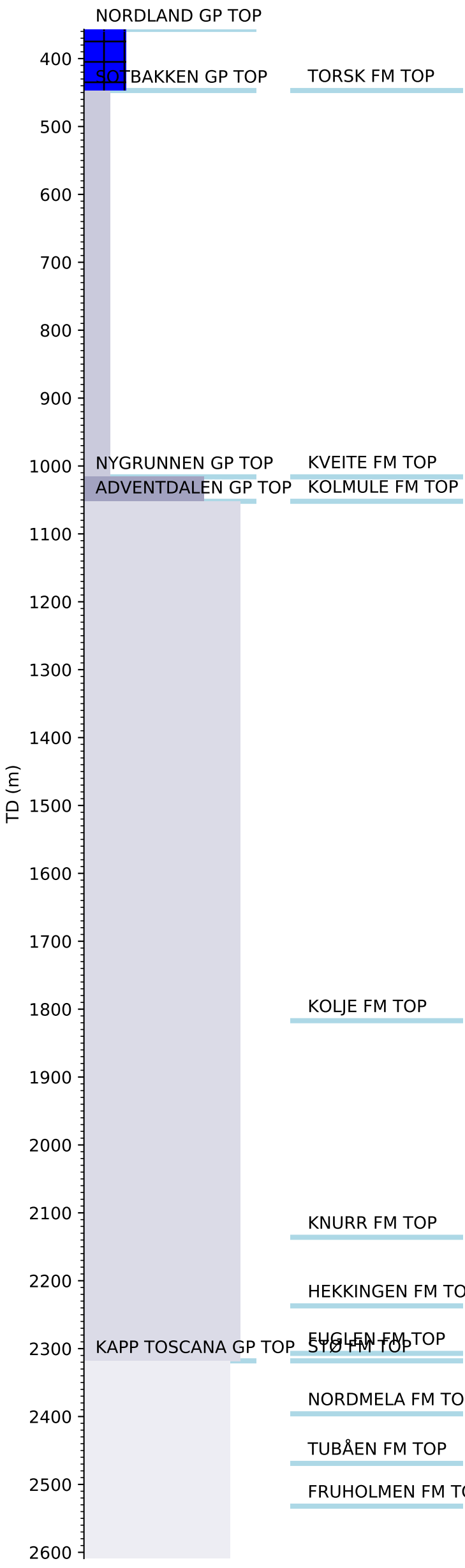

Wellbore History

GENERAL

Exploration well 7121/4-1 was drilled in the Hammerfest Basin in the Troms I area. The primary objective was to test possible hydrocarbon accumulations in sandstones of Middle to Early Jurassic age.

OPERATIONS AND RESULTS

Well 7121/4-1 was spudded with the semi-submersible rig West Vanguard on 6 August 1984 and drilled to TD at 2609 m in Late Triassic sediments (Fruholmen Formation). Loss of circulation occurred at TD in 12 1/4" section at 2285 m, and several times during drilling of 8 1/2" hole but otherwise operations went without significant problems. The well was drilled with spud mud down to 817 m, with gypsum/Celpol from 817 m to 2285 m, and with gel/chromium-lignosulphonate from 2285 m to TD.

Hydrocarbon accumulations were discovered in two separated sandstone sequences. The uppermost sequence between 2318 m and 2442 m in the Stø and Nordmela formations contained gas over oil, while the lower sequence was gas bearing between 2468.5 m and 2473 m in the uppermost few meters of the Tubåen Formation. The gas/oil contact in the upper reservoir was seen from RFT to be at 2425. The oil zone, 2425 m to 2442 m in the Nordmela Formation, consists of an interbedded sandstone/shale sequence with fair/poor reservoir properties. There is a sealing shale between 2444 and 2468.5 m that screens off the upper gas-oil system from the lower Tubåen gas reservoir. The lower gas zone has good reservoir properties. The sandstone continues to TD at 2587 m, interrupted by some minor shale beds and one major shale bed at 2532 m to 2560 m. Four cores were cut in the reservoir interval from 2321 m to 2416.35 m in the Middle Jurassic down into the Early Jurassic. Three segregated RFT samples were taken. For all three samples the 2 3/4 gallon chambers were bled off at well site. Sample 1 from 2365 m recovered gas, black condensate, and mud filtrate. Sample 2 from 2470 m recovered gas, brown condensate, and mud filtrate. Sample 3 from 2412 m recovered gas, brown condensate and mud filtrate.

The well was permanently abandoned on 27 October 1984 as the Snøhvit oil and gas discovery.

TESTING

Four intervals in the Middle to Early Jurassic sequence were perforated and production tested: 2497.6 m to 2504.2 m (DST 1 in Tubåen Formation), 2465.93 m to 2471.93 m (DST 2 in Nordmela to Tubåen formations), 2419.85 m to 2434.85 m (DST 3 in Nordmela Formation), and 2353 m to 2385 m (DST 4 in Stø Formation).

DST 1 was a water test and produced 346 m3 water / day through a 25.4 + 1.75 mm choke.

DST 2 was a gas test, perforated just 1 m above the gas/water contact. This caused a very high water production starting at about 7 % with an increase to more than 99 % water of the total fluids produced (water-coning) before the well was shut in. In the middle of the main flow the test produced 34.8 Sm3 condensate, 391400 Sm3 gas, and 309.4 m3 water per day through a 19 mm choke. This gives a GOR of 11203 Sm3/Sm3.

DST 3 was an oil test and produced 81.6 Sm3 oil and 88300 Sm3 gas per day through a 12.7 mm choke. This gives a GOR of 1083 Sm3/Sm3. Gas gravity was 0.734 (air =1) and oil density was 0.856 g/cm3. The gas contained 6 % CO2 while the H2S content was nil. No water was produced. Hydrate formation in the choke manifold and down hole was reported in this test.

DST 4 was a gas test. The first attempt was aborted due to a leak in the tester valve. The second and successful test was named DST 4A. This test produced 109 Sm3 condensate and 844300 Sm3 gas / day during the main flow through a 25.4 mm choke. This gives a GOR of 7744 Sm3/Sm3.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7121/4-1