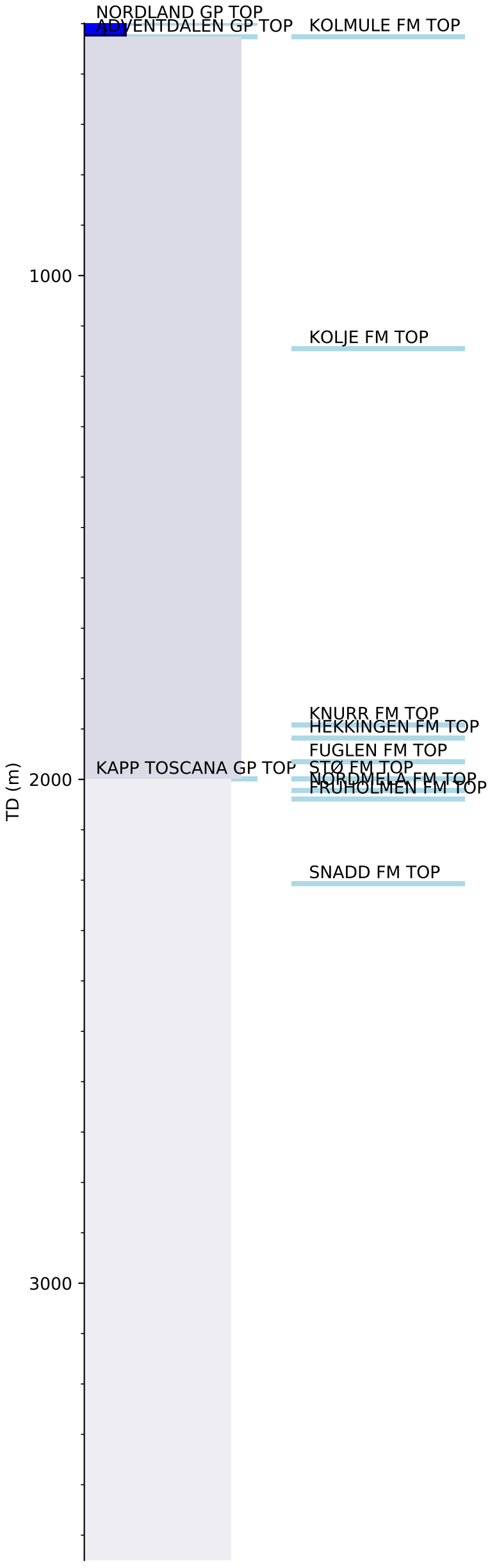
Groups

Formation Tops



Wellbore History

GENERAL

Well 7321/7-1 was the first well drilled on the license. It is located in the Fingerdjupet Sub-basin in the Bjørnøya Øst area. The primary objective of the well was Jurassic to Triassic sandstones in a rotated fault block. Potential was expected throughout the Middle Jurassic to Base Carnian interval.

OPERATIONS AND RESULTS

Wildcat well 7321/7-1 was spudded with the semi-submersible installation Ross Rig 26 June 1988 at a depth of 3550 m in Early Triassic rocks. The hole was drilled to 526 m and then abandoned due to building up of the angle. The rig was moved 13 m and the well was re-spudded 27 June 1988. The hole was drilled to setting depth for 20" casing without returns to the surface. During drilling of 17 1/2" hole section, problems with loss of drilling mud to believed weak/fractured formation occurred. This lead to setting of 13 3/8" casing shoe at 1430 m, 770 m higher than planned. The problem with loss of mud continued below 13 3/8" casing shoe and down to 1813 m where the loss was considerably reduced. During drilling of the Jurassic and Triassic sequences no drilling mud was lost to the formation. Except from two fishing operations no significant drilling problems were experienced. The well was drilled with seawater and hi-vis pills down to 982 m and with gelled seawater / polymer from 982 m to TD. There was no shallow gas in the hole.

Top reservoir (Stø Formation) was encountered at 1998.5 m, 97.5 m deeper than prognosed. An Intra Carnian reflector prognosed at 2736 m and was encountered at 2751 m, only 15 m deeper than prognosed. Near bottom a Carnian seismic reflector was encountered at 3448 m. The mud log and wire line logs indicated good reservoir parameters for a gas sand in the interval 2384.8 m to 2390.4 m in the Snadd Formation. Log analysis showed good porosity and low water saturation, 21.2% and 31.1% respectively. Core analysis indicated clean sand with high porosity. Core permeabilities were greater than 100 mD, but RFT pressure tests and sampling did not support this. The conclusion was that the 5.5 m sand was gas bearing but the permeability is low. Production from the well would probably be dry gas at low rates. Very weak shows were recorded from 1320 m to 1435 m in the Kolje Formation, from 2003 m to 2053 m in the Stø Formation, and from 3472 m to 3487 m in the Snadd Formation. Organic geochemical studies detected potential source rock all through the well in the Adventdalen and Kapp Toscana Groups. The kerogen was reported as mature for petroleum generation as shallow as in the Adventdalen Group (base at 1918 m), and as "highly mature" in the Kapp Toscana Group.

Four cores were attempted, but due to very low rates of penetration the coring program was severely reduced. The first core was cut in the Early Cretaceous Knurr Formation. A second core was attempted in the Stø Formation, but was aborted due to no penetration. The third core was cut in the Middle Jurassic Stø Formation and a final core was cut in a sandstone in the Snadd Formation. Four RFT fluid samples were taken. One sample was taken in the Stø Formation at 2002.5 m, recovering 3.3 litres of water and 3.3 litres of solution gas. The RFT pressure tests indicate no permeability or moderate permeability at best in the sample zone. Two RFT samples were taken in the Snadd "gas sand", at 2388 m and at 2389.8 m. Both were terminated early due to slow pressure build-up. The 2-3/4 gallon sample taken at 2388 m contained 36.2 litres of gas and 233 ml of water. The flowing pressure while sampling was less than 100 psia, with an initial formation pressure of 3396.5 psia, and the chamber was not filled in 30 minutes. The 1-gallon sample taken at 2389.8 m contained only 1.5 litres of gas and 100 ml of filtrate. It had a similar pressure build-up and was terminated after 15 minutes. The fourth RFT fluid sample was taken at 3348 m in Base Carnian sandstone. The sample recovered only 100 ml of mud filtrate and was terminated after 15 minutes due to the low flowing pressure of 50 psia. The formation pressure is 5035.6 psia.

The well was permanently abandoned on 22 October 1988 as a dry hole.

TESTING

No drill stem test was performed

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7321/7-1