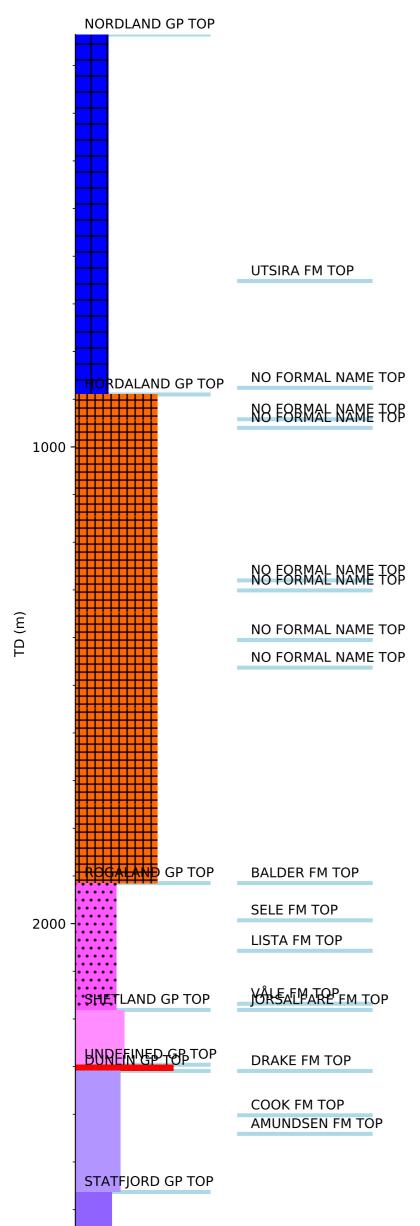


Wellbore History



GENERAL

Well 30/6-17 was drilled on the Alpha structure on the western side of the Oseberg Field in the northern North Sea. The structure is a tilted and rotated fault block with a Jurassic sequence dipping towards the east. The main objective was to prove hydrocarbons in the Statfjord Formation. Prognosed depth was 200 m into the Statfjord Formation with TD at ca 2682 m. Well 30/6-17 was drilled by Vildkat Explorer to a depth of 615 m where it was temporary abandoned due to technical problems. The re-entry 30/6-17 R was made to fulfil the original objectives.

OPERATIONS AND RESULTS

Wildcat well 30/6-17 was re-entered with the semi-submersible installation Treasure Hunter on 14 August 1985 and drilled to TD at 2650 m in the Early Jurassic Statfjord Formation. The well was drilled without significant technical problems, but about one third of the time was counted as downtime. The main contribution to the excessive downtime was waiting on weather. The well was drilled with KCI/polymer mud from 615 m to 2409 m and with NaCI/polymer mud from 2409 m to TD.

Oil shows were recorded on limestone and dolomite stringers in the Tertiary and Late Cretaceous, beginning at 1650 m and all the way down to near BCU at 2290 m. These oil shows were most frequent, and strongest, in the interval 1750 to 1810 m in the lower part of the Tertiary Hordaland Group. Two gas bearing sandstones units, possibly reworked Brent Group, were found at the BCU (2296 - 2300 m and 2303 - 2308 m).

The prognosed target for the 30/6-17 well was the Statfjord Formation. The well was, however, drilled ca 600 m east of the proposed location at a structurally down flank position. At this position also the Cook Formation was penetrated.

The Cook Formation (2401.5 - 2441 m) consists of medium to fine grained sand sandstones in the upper part, becoming fine to very fine with depth. The sandstones were found oil bearing down to 2419.5 m (free water level from RFT). No gas/oil contact was seen in the well, but the presence of a gas cap was indicated in the DST. The net pay is calculated from logs to 15.9 m, with an average porosity of 26.4% and average water saturation of 40.1%. Cut off criteria were: PHI < 12%, Vsh > 40%, Sw > 60%. The Statfjord Formation (2563 m - TD) was encountered water bearing. Of a gross thickness of 73 m (log) penetrated by the well, 57.6 m was net sand with an average porosity of 24.3%. The RFT results indicate no pressure communication between the Statfjord and the Cook Formations.

A total of six cores were cut. Core 1 at 2324 - 2342.15 m was an attempt to cut a core from the gas bearing sands at BCU, but did not really capture the sands. Cores 2 - 4 were cut in the Cook Formation, while cores 5 and 6 were cut in the Statfjord Formation. There is a discrepancy between loggers and drillers depth of 2 m for cores no 1 - 4, and 4 m for cores no 5 and 6, the logger's depth being the shallower. SFT/RFT pressure tests and sampling were performed in the Cretaceous and Jurassic. In the Cretaceous interval sixteen SFT good pressure tests were taken. A segregated SFT fluid sample was unsuccessfully attempted taken at 2297.9 m in one of the gas sands. RFT was used for pressure recordings and sampling in the Cook and Statfjord Formations. Twenty one pressure measurements were recorded, and one segregated sample was taken in the Cook Formation at 2408.5 m (5.82 litre oil with some gas and water/filtrate in 1st. chamber).

4 February the well bore was plugged back to the 13 3/8" casing shoe for an up-dip sidetrack to the original target Statfjord Formation. The well is classified as an oil and gas discovery.

TESTING

LITHOSTRATIGRAPHY

One DST was performed in the Cook Formation at 2401.7 - 2414.7 m. Seven flow period the well produced oil at a rate of 701.1 Sm3/d and gas at a rate of 110 000 Sm3/d Through a 14.29 mm choke. The gas/oil ratio was 156.9 Sm3/Sm3. The oil gravity was measured to 0.824 g/cc (40.1 API) and gas gravity was 0.662 (air = 1). The GOR varied from 130 to 274 Sm3/Sm3. When the well was produced at higher rates the GOR increased substantially. This indicated the presence of a gas cap, and that the well penetrated the reservoir just below the gas/oil contact. In the three final flows the measured bottom hole temperature stabilised at