



Wellbore History

GENERAL

Wildcat well 34/7-8 was drilled on the "C" structure south of the Snorre field area on Tampen Spur in the Northern North Sea. The Late Triassic - Early Jurassic reservoirs of the structure are tilted fault blocks dipping in a generally north westerly direction. The "C" structure is defined by a major west bounding fault with throws up to 350 m in the northwest, diminishing to 20 m at the southern end. The main objectives of the well were to test the quality and thickness of the Statfjord Formation and the Upper Lunde Formation. Further objectives were to test the fluid content of the structure and sealing effect of the "C" horst fault.

OPERATIONS AND RESULTS

Well 34/7-8 was spudded with the semi-submersible installation Treasure Saga on 5 February 1986 and drilled to TD at 2766 m in the Late Triassic Lunde Formation. Problems with tight hole were experienced through several zones in the 17 1/2" section. At 1642 m the pipe stuck and had to be worked free. During plug and abandon operation of the combined cut and pull tool caused problems. After several attempts of cutting, the string parted in the section of drill collars. Fifty-seven m of drill collar, cut and pull tool, wellhead with casing strings, TGB and PGB were left on the seabed. Seabed clean-up operations were carried out in June 1986, after abandonment. The well was drilled with spud mud down to 439 m, with gel mud from 439 m to 870 m, with gypsum/polymer mud from 870 m to 2280 m, and with gel mud from 2280 m to TD.

Apart from the sandy Utsira Formation of Late Oligocene - Pliocene age, an Early Oligocene (1265 - 1350 m) and a Middle - Late Eocene (1445 - 1465 m) sandstone unit within the Hordaland Group, the Tertiary and Cretaceous proved mainly claystones. The Jurassic consists of reworked sandstone, a claystone rich Dunlin Group and alternating sandstones and claystones in the Statfjord Formation. The Triassic proved sandstones occasionally alternating and interbedded with claystones down to TD

Oil was encountered from 2275 m in the Late Jurassic "Reworked Sand" (Formally named Intra Draupne Formation Sandstone). No oil water contact was defined. From log evaluation oil was estimated down to 2405 m (Statfjord Formation) and water up to 2525 m (Lunde Formation). The Intra Draupne sand (2275.0 - 2284.5 m) had an average log porosity of 25.1%, average water saturation of 15% and N/G of 0.94. In the Statfjord Formation (2299 - 2373 m) the average porosity was 21.7%, the water saturation was 35% and the N/G was 0.33. In the Upper Lunde Formation down to 2405 m, the average porosity was 20.3%, the water saturation 67%, and the N/G 0.18.

Trace shows were first encountered in sandy lamina from top of the Rogaland Group at 1690 m. First occurrence of C2+ in mud gas was detected at 2055 m. The shows were poor to moderate down to top reservoir. Strong oil shows, stain and odour was recorded on sandstones in the reservoir with the deepest show recorded on cored sandstone at 2401 to 2403 m in the lower part of the Statfjord Formation.

Four cores were cut in this well. The first was cut from 2280 - 2294.4 m in the Reworked Jurassic Sandstone and into the Dunlin Group. Cores No. 2 and 3 were cut in the Statfjord Formation in the intervals 2325 - 2365 m and 2401 - 2406.4 m. The lowest core was cut at 2397 - 2407 m in the Upper Lunde Formation. Two FMT fluid samples were recovered from 2398.2 m (0.2 l oil and 2.2 l filtrate) and at 2302 m (1.2 l oil and 2.8 l filtrate).

The well was permanently abandoned on 11 April 1986 as an oil discovery.

TESTING

A total of 3 production tests were carried out in the Upper Lunde, the Statfjord Formation and the Intra Draupne Formation sand.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 34/7-8

Test 1B was cut from the Statfjord Formation (2359 - 2374 m). The oil production rate through a 6.4 mm choke was 46 Sm³/day at 18 bar wellhead pressure. The GOR was 55 Sm³/Sm³ and the stock tank oil density was 0.855 g/cm³. The reservoir temperature was measured to 86.5 deg C.

During test 1B, both the Statfjord Formation (2359 - 2374 m) and the Upper Lunde Unit A (2397 - 2405 m) perforation intervals were open to flow. The oil production rate was 120 Sm³/day through a 19.1 mm choke at 6.5 bar wellhead pressure. It could not be established if the deeper