



Wellbore History

GENERAL

Block 16/10 is located in a structurally complex area between the Viking Graben, the Central Graben, the Witch Ground Graben and the Ling Graben. Well 16/10-2 is the second well drilled in block 16/10 PL 101 operated by Norsk Agip; the first one 16/10-1 was drilled May-July 1986. The purpose of the well was to test the hydrocarbon potential of the "Delta" structure located in the west part of 16/10 block. This structure is a tilted fault block elongated north-south bounded to the west by a north-south trending normal fault, and dip-closing to the north, east and south. It was interpreted as the largest structure in block 16/10 in terms of possible oil reserves. The structure is not salt-induced and being one of the oldest in this area it was also considered prospective for possible early migration. The Upper Jurassic and the Lower Cretaceous shales constituted the seal rocks for the geological model. The main and the secondary targets were respectively the "Oxfordian Sandstones" (Upper Jurassic) and the Triassic sandstones of the Skagerrak Formation that had been found hydrocarbon bearing in the nearby blocks in wells 6/3-1, 15/12-5, 15/12-4, 15/12-8, 15/12-6 and 16/7-4.

OPERATIONS AND RESULTS

Exploration well 16/10-2 was spudded with the semi-submersible installation Byford Dolphin on 20 June 1991 and drilled to a total depth of 3150 m in the Triassic sandstones of the Skagerrak Formation. The well was drilled with seawater and gel down to 417 m, with Seawater and gypsum polymer from 417 m to 2798 m and with Bentonite/Anco Temp mud from 2798 m to TD.

The Quaternary/Tertiary sequence constituted predominantly marine claystones of the Nordland, Hordaland and Rogaland Groups. The Cretaceous sequence was mainly represented by limestones of the Chalk Group and by the reddish claystones and calcareous marls of the Cromer Knoll Group that overlay the Base Cretaceous Unconformity found at 2818 m. The Upper Jurassic sequence consisted of 35 m darkish/brown shales belonging to the Draupne Formation overlying 70 m of the "Oxfordian Sandstones" (Hugin Formation). This reservoir showed a larger sand development than in 16/10-1 well where only 33 m sand was encountered. The top of the "Oxfordian Sandstones" was encountered at 2853 m. Below the sand, from 2923 m to TD, Triassic continental sandstones of the Skagerrak Formation were encountered. The geological results of 16/10-2 well were in good agreement with the structural and stratigraphic models expected. The targets (i.e. Oxfordian Sandstone and Skagerrak Fm.) were found water bearing and no hydrocarbon bearing level or relevant shows were encountered in the well. Conventional cores were not taken. A RFT segregated sample at 2876 m recovered only water and mud filtrate.

The well was permanently abandoned as a dry well on 1 August 1991.

TESTING

No drill stem test was performed

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 16/10-2