



Wellbore History

GENERAL

Well 15/5-5 is located in the Northern North Sea, ca 15 km north of the Sleipner Field. The primary objective of the well was to prove commercial volumes of oil in a prospect in the Late Paleocene Heimdal Formation. The well location was chosen so as to test the prospect in a position with as little up dip reserves as possible.

OPERATIONS AND RESULTS

Wildcat well 15/5-5 was spudded with the semi-submersible installation Treasure Saga on 31 August 1995 and drilled to TD at 2645 m in the Early Paleocene Ekofisk Formation. Boulders were experienced in the interval 155 -170 m MD and some time was spent to correct the inclination. Otherwise operations went without problems and the well was completed well within schedule. The well was drilled with spud mud down to 1000 m and with KCl/polymer mud from 1000 m to TD.

The well penetrated water bearing Grid Formation sands from 1479 m to 1807 m. The Heimdal Formation was encountered at 2154 m with 27.4 m of net pay hydrocarbon-bearing reservoir sand down to the OWC at 2187m. The average porosity was calculated to 30.6 % and the average horizontal core permeability was 1.9 Darcy. The OWC was based on formation pressure measurements (MDT) and logs. The average oil saturation over the interval was estimated to 67.4 %. The MDT data indicated a Free Water Level at 2189.2 m. Oil shows and low saturation of migrated hydrocarbons were observed in selected intervals below the OWC down to 2191 m. The Heimdal Formation from top to 2191 was the only interval in the well that had reported oil shows. An 82 m thick water bearing sandstones of the Ty Formation was encountered at 2501 m.

The interval 2157 - 2200 m was cored in 3 cores using equipment especially developed for soft sediment coring. The original core depths are 4 m shallow relative to wire line log curves. The cores covered most of the oil zone and extended into the water leg. MDT fluid samples were taken at 2157.5 m (mud filtrate and oil), 2177 m (oil), 2186.5 m (oil), and at 2193.5 m (water).

The well was permanently abandoned on 5 October 1995 as an oil discovery.

TESTING

One production test was conducted in the Heimdal Formation over the perforated interval 2154 - 2183.5 m. The test produced 575 Sm3 oil and 36000 Sm3 gas /day through a 60/64" choke. The GOR was 63 Sm3/Sm3, the oil density was 0.864 g/cm3, and the gas gravity was 0.868 (air = 1). The gas contained maximum 0.3% CO2 and no H2S. Maximum bottom hole temperature in the test was 79.7 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 15/5-5