



Wellbore History

GENERAL

Well 15/6-7 was the first well in licence 166. The primary objective of the well was to test the hydrocarbon potential of the Middle Jurassic, Hugin Formation of Callovian age within a seismically defined structural trap. There were no secondary objectives for the well, however, other potential reservoir horizons, albeit outside closure, were anticipated within the early Tertiary succession. The well programme was designed to maximize the evaluation of these sections as

required.

OPERATIONS AND RESULTS

Exploration well 15/6-7 was spudded on 24 April 1993 with the semi-submersible installation "Vildkat Explorer" and drilled to TD at 3540 m in the Triassic Smith Bank Formation. The well was drilled with gel and seawater down to 505 m, with PHPA/KCl mud from 505 m to 1173 m, with PHPA/KCl/Glycol mud from 1173 m to 2788 m, and with PHPA/KCl mud from 2788 m to TD.

The Quaternary and Tertiary sequence represented by the Nordland, Hordaland and Rogaland Group is dominated by mudstone lithologies with occasional thick sandstone developments in the Utsira, Grid, and Heimdal Formations. Background gas values ranged from less than 0.1% to 0.5% with rare isolated gas peaks. The Late Cretaceous succession in the well, 493 m thick, is dominated by carbonate lithologies of the Shetland Group; below 3150 m these become increasingly and atypically sandy. A number of gas peaks were recorded over the interval 3025 m to 3157 m with a maximum gas peak of 5.42% recorded at 3154 m. The Early Cretaceous, 14.5 m thick, represented by the Cromer Knoll Group is substantially thinner than anticipated and consists of arenaceous limestones interbedded with thin calcareous sandstones. The Upper Jurassic Draupne Formation was penetrated at 3233 m, 36 m low to prognosis. Intra Draupne Formation Sandstone was encountered at 3292 m. A formation fluid influx of 3.9 m3 equivalent to a calculated pore pressure of 1.5 sg (RFT) occurred at 3327 m (3331 m loggers depth), a gas peak of 0.74% was associated with this influx. The mud weight was increased from 1.30 sg to 1.52 sg during well control operations. The top Heather Formation was penetrated at 3352.5 m, 75.5 m deeper than anticipated. Background gas values within the Draupne and Heather Formations gradually decreased with depth from 4% to 0.18% at the base of the Heather Formation. The primary objective, the Hugin Formation, was penetrated at 3390.5 m, 4.5 m shallower than anticipated. The Hugin Formation consists of interbedded mudstones and sandstones with the sandstone beds increasing in thickness with depth. The well failed to penetrate any hydrocarbon bearing horizons. The primary objective Hugin Formation was water bearing. This was confirmed by RFT and petrophysical evaluation of the logs.

One conventional core was cut over the interval 3414 m to 3432 m (15.7 m recovered) in the Triassic Skagerrak Formation. Three RFT runs, 3/1,3/2 and 3/3, were performed in the 8.5" hole section in the Draupne, Hugin and Skagerrak Formations, over the interval 3433-3331 m. A segregated sample was taken on run 3/3. The sample recovered 5 l of muddy water in the 6-gallon chamber. The 1-gallon chamber was plugged.

The well was permanently plugged and abandoned as a dry hole on 8 June 1993.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 15/6-7