



## Wellbore History

### GENERAL

The purpose for drilling the well 7122/7-2 was to appraise the potential of the Kapp Toscana Group in the central fault compartment of the Goliat structure, and to see if a deeper oil/water contact could be proved. The main, eastern compartment was proven oil bearing by the exploration well 7122/7-1 drilled in year 2000. The Goliat structure is a faulted structural closure in the crestal part of a major Northeast-Southwest trending rollover anticline situated in the southeastern part of the Hammerfest Basin.

### OPERATIONS AND RESULTS

The 7122/7-2 appraisal well was spudded with the semi-submersible installation West Alpha on 12 September 2001 and drilled to a total depth of 1418 m, 222 m into the Middle to Late Triassic Snadd Formation. A possible gas anomaly prognosed at 450 m proved to be a water bearing sand. Gas was detected at 610 m, but the pressure was low enough to be controlled by the drilling fluid hydrostatic pressure. No further indications of shallow gas were noted during the drilling of the pilot hole. The well was drilled with sea water and high viscous pre-hydrated bentonite mud down to 910 m and with Format brine / XC polymer / PAC mud from 910 m to TD.

The top of Kapp Toscana Group was penetrated at 1078 m (1060 m TVD SS), 9 m above the prognosis. This was also the top of the main reservoir. The reservoir was oil bearing. The MDT pressure points gave an OWC at 1153.8 m (1135 m TVD SS). This is 14 m deeper than in the well 7122/7-1. A pressure difference of 1 bar between the two wells was observed in the oil zone. Good to very good shows were observed in cuttings, and conventional cores from 1078 m to 1153 m. Evidence of water wet sand was seen on core chips from 1155 m. Hydrogen sulphide was recorded as 6 to 25 ppm at approximately 1075 m. In the 12 1/4" hole section down to 1070 m total gas values predominantly ranged from 0.27% to 0.9%. At core point at 1075 m the gas content increased to 2.33%. From 1075 m to the base of coring at 1160 m, gas values ranged between 0.25 to 4.79%. Thereafter the background gasses decreased down to 0.15 near TD. Oil shows were noted above the reservoir from cuttings sample at 1062 m.

Five bottom hole cores were cut from 1075 to 1160 m. Recovery was 82% to 100%. The cores confirmed the heterogeneity of the Kapp Toscana reservoir as observed in well 7122/7-1. For the first time in Norway & Half Moon aluminium" inner tube was used while coring. By this technique it was possible to take images in white and UV light of the full core immediately after the core was recovered. The core images were filed together with the core gamma and only hours after the core was on the drill floor all involved parties had a full description of the core with core gamma and images in white and UV light. A MDT fluid sample was taken at 1078 m in the top of the reservoir to check on the high H2S readings at that depth. No H2S was detected in the sample. A second MDT sample was taken at 1162 m. The well was permanently abandoned as an oil appraisal on 19 October 2001.

### TESTING

One DST was performed in the intervals 1078-1106 and 1127-1136.5 m in the Kapp Toscana Group. The best flow was 685 m3 oil and 40400 m3 gas per day from a 48/64" choke. This gives a GOR of 59 m3/m3 and the oil density was 33 deg API. No H2S was detected. Neither sand nor water was produced throughout the test.

## LITHOSTRATIGRAPHY & HISTORY FOR WELL: 7122/7-2