



Wellbore History

GENERAL

Well 34/7 9 was drilled on the Snorre structure in the northernmost part of the block. The main objective of the well was to test the hydrocarbon potential of the upper Lunde Formation in the Snorre structure.

OPERATIONS AND RESULTS

Appraisal well 34/7-9 was spudded with the semi-submersible installation Treasure Saga on 13 April 1986 and drilled to TD at 3240 m in the Late Triassic Lunde Formation. Minor shallow gas peaks were observed from mud gas readings in the pilot hole below the 30" casing at 498 - 500 m. Drilling proceeded without significant problems. The well was drilled with spud mud down to 471 m, with gel mud from 471 m to 915 m, with gypsum/polymer mud from 915 m to 2479 m, and with gel mud from 2479 m to TD.

Well 34/7-9 penetrated the reservoir at 2442.5 m, 50 m deeper than prognosed. From FMT pressure points the the oil water contact (OWC) was defined in the upper Lunde at 2600 m (2574 m MSL). The average log porosity in the oil zone was 25.6%, the net/gross was 0.24, and the average water saturation was 30%.

Shows were seen from 2100 to 2315 m in the Shetland Group. Below 2315 m the shows disappeared and did not reappear before the upper Lunde reservoir was penetrated at 2442.5 m. Down to a sandstone/claystone boundary at 2594 m, the sandstones showed a pale brown oil stain, fair to good odour, 100% - 90% strong, patchy, yellow to light yellow fluorescence, fast to instant streaming bluish white cut and a pale yellow residue upon evaporation. Below 2594 m no shows were seen.

A total of 10 cores were cut and recovered during drilling of the well. The cores were taken in the upper Lunde Formation from 2470.0 to 2720.5 m core depth. The average core recovery was 96.7%. Logger's depths for the cores were from 1.75 to 4.00 m shallower than the core depths. FMT fluid samples were taken at 2585 m and 2592 m. All analysed sample chambers contained black oil and brown-grey water with sediments.

The well was permanently abandoned on 12 June 1986 as an oil appraisal.

TESTING

One DST was carried out with four zones in the upper Lunde Formation flowing simultaneously: 2501 - 2504 m, 2506 - 2515 m, 2527 - 2536 m, and 2550 - 2553. The zones were flowed for 175 hours, followed by a build-up of 50 hours. During the main flow period the flow rate through a 15.9 mm choke decreased from 1400 Sm3 /day to 896 Sm3 /day and the corresponding wellhead pressure decreased from 130 to 93 bar. Fluid analyses of pressurized samples from the test gave a GOR of 103 Sm3/Sm3 and stock tank oil density of 0.8258 g/cm3. The maximum temperature recorded at reference depth, mid-perforations, was 93.3 deg C.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 34/7-9