



Wellbore History

GENERAL

Well 24/6-2 was designed to test the hydrocarbon potential of the A2 North Heimdal T60 sand prospect within the Lista Formation in the northern part of the license acreage in block 24/6. A secondary target was defined in the A1 North Hermod T80 sand within the Sele Formation. The well should also test the seismic amplitudes in an area with indications of the presence of the Hermod sand. The well was planned to be drilled to a total depth of 2774 m within the Shetland Group.

OPERATIONS AND RESULTS

Well 24/6-2 was drilled with the semi-submersible rig "Transocean Leader". It was spudded on 26 May 1998 and reached a total depth of 2722 m in the Paleocene Våle Formation on 18 June 1998. The well was drilled water based with bentonite mud to 1331 m and with KCl / Polymer mud from 1331 to TD. "BP PCD 208" (polyalkylene glycol) was added to the KCl / Polymer mud from 1802 m to TD (through the 8 1/2" section).

As TD was set in the Våle Formation the target Shetland Group was not encountered in the well. Both oil and gas were encountered within the Heimdal T60 sand. The gas zone extended from the top of the reservoir at 2099m and down to the oil-gas contact at 2151m (52m gross) and the oil extended down to the oil- water contact at 2168m (17m gross). The reservoir quality is generally excellent, but locally it is reduced either by fines or by calcite cement within what appear to be calcite nodules. The massive channel sands in the upper part of the reservoir confirm the braided channel model used for the T60 sand. Lower down in the reservoir oil zone much more fine material is present as laminations. Some of these units appear as shales on the gamma log, but are in fact fine-grained, argillaceous sands. No Hermod T80 sands were encountered in the well, nor was the "High Acoustic Interval" that was used to map the apparent sand distribution identified on the logs. Twelve cores were cut in the well from 2010 m in the lower part of the Balder Formation Tuff Member, through the Sele Formation and upper Lista Formation shale and down to under the oil-water contact in the Heimdal Formation at 2192 m (182 m in all). Recovery was generally excellent and in some cases over 100% due to gas expansion. The sands in the cores are generally unconsolidated and friable especially in the lower cores. This made plug cutting for core analysis difficult even after core 11 and 12 were frozen. MDT wireline oil samples were collected from 2164 m and 2167 m in the Heimdal Formation.

The well was permanently plugged and abandoned as an oil and gas discovery on 8 July 1998.

TESTING

One drill stem test was run in the Heimdal Formation oil zone (perforation 2156.75 - 2165.75 m). The well flowed with a stable flow rate of 550 Sm3/day and 44.000 Sm3/day of gas through a 48/64" choke. Oil density was measured as 0.855 gm/cc. Gas gravity was 0.690 gm/cc and the GOR was 80 Sm3/Sm3. Water was produced during the higher flow rates.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 24/6-2