



Wellbore History

GENERAL

Well 34/10-32 was the fifth well on the Gullfaks South structure. The main objective was to confirm hydrocarbons in the southern part of the structure, and to get data for update of the structural and geological model of the area. The main target was the Statfjord Formation, where the oil-water contact was expected at 3360 m. Secondary targets were Brent Group sandstones and the Lunde Formation.

OPERATIONS AND RESULTS

Appraisal well 34/10-32 was spudded 9 April 1987 by Smedvig semi-submersible installation West Vision and drilled to TD at 3753 m in the Triassic Lunde Formation. Shallow gas was found in the neighbouring hole, and it was decided to set the 20" casing early. There was one meter of shallow gas in this hole as well, but no problems occurred due to this. At setting depth of 13 3/8" casing at 1982 m in the Lista Formation the casing stuck at approximately 1000 m. After several days of fishing 700 m casing was retrieved, while 300 m dropped to the bottom of the hole. The well was sidetracked with kick-off point at 1323 m and further drilling proceeded without significant problems. The well was drilled with spud mud down to 350 m, with gypsum/polymer mud from 350 m to 2940 m, and with lignosulphonate/lignite mud from 2940 m to TD.

The stratigraphy came in different from prognosis due to faulting. An 8 m thick Brent Group sequence (Ness Formation) came in at 3170 m, which was 180 m deeper than prognosed. The section consisted of sandstone/siltstone and was gas-bearing. The Cook Formation sandstones came in at 3236 m, 207 m deeper than prognosed, and were water-bearing. The well penetrated a large fault at 3316 m within the Amundsen Formation so that a large part of the Amundsen Formation was missing. Because of this, the Statfjord Group came in at 3353 m, which was only 44 m deep to prognosis. The Statfjord Group was oil-bearing down to 3394 m (3360 m MSL). This is the same as the oil/water contact in 34/10-2. Oil shows on cores continued down to 3447 m, and spotted shows were seen on cuttings down to 3465 m.

Six cores were cut in the well, one in the interval 3176 - 3189 m, four in the interval 3359 - 3447.2 and one at 3707 - 3723.5 m. The core-log depth shifts for core number one to six, in increasing order, were -1.0 m, 0.0 m, -1.3 m, -0.9 m, -1.2 m, and -1.3 m. RFT sampling was attempted at 3543.5 m (tight formation) and at 3643 m (recovered mud filtrate only).

The well was suspended on 13 July 1987 as an oil and gas appraisal well.

TESTING

Drill stem testing was done in the re-entry by the semi-submersible Deepsea Bergen.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 34/10-32