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Wellbore History

GENERAL

Well 30/9-8 R was drilled on the Oseberg Omega structure, which is located between the Gamma structure to the east and the B structure to the west, and extends northwards into 079 license area. The main target of the well was sandstones in the Middle Jurassic Brent Group. The primary objectives were to prove the extension of the Omega oil column into license 104, find the fluid contacts, and test communication and reservoir relationship with the Omega North and B prospects. The well was planned to drill approximately 50 m into the Dunlin Group at a final depth of ca 3182 m RKB. Well 30/9-8 R is a re-entry of well 30/9-8, which was suspended at 1060 m while the rig left location temporary for another contract.

OPERATIONS AND RESULTS

Wildcat well 30/9-8 was re-entered (30/9-8 R) by the semi-submersible rig Polar Pioneer on 15 August 1989. Cement and float collar was drilled from 1007 to 1060 m in 30/9-8. Well 30/9-8 R was then drilled to TD at 3200 m in the Early Jurassic Drake Formation. Drilling proceeded without significant problems. There was no indication of shallow gas. The well was drilled with a KCI/PAC/Polymer mud from 1060 m to TD.

Top reservoir came in at 2814 m, approximately 30 m deeper than prognosed. The reservoir was oil bearing from 2824.5 to 2851 m. Below 2851 m the water saturation gradually increased. RFT data indicated a free water level at 2856 m (2832.5 m MSL). However, the available data do not permit the exact definition of the oil water contact, which is in the range 2856 -2862.5 m. The net pay was determined to be 22 m with average water saturation calculated to 46%. Average porosity was 18.5%. RFT results showed no pressure communication with well 30/9-4 within the Tarbert Formation. Well 30/9-8 is interpreted to be in communication with well 30/9-3a in the Tarbert oil zone but not with well 30/9-7.

Oil shows were described from ditch cuttings in the Lista Formation in intervals 2300 to 2322 m and 2355 to 2360 m, and in the uppermost part of the Shetland Group from 2380 to 2400 m. In the Viking Group sidewall cores from 2765 to 2786 m carried shows and in the Brent Group shows were described both from ditch cuttings, conventional cores and sidewall cores throughout the oil bearing zone. Below the free water level shows occurred intermittently down to 3137 m. No oil shows were recorded below 3137 m

Three cores were cut in the interval 2800 to 2934.2 m in the Tarbert Formation. RFT fluid samples were taken at 2843 m and at 2845.8 m. All sample chambers were filled with water and mud filtrate. The well was suspended on 25 September 1989 as an oil and gas discovery, and will later be converted to a water injector.

TESTING

One production test in the water zone and a two stage production test in the oil zone were performed.

Test #1 was conducted in the interval 2904.4 -2913.4 m (Tarbert Formation). It flowed water and gas at an average rate of 441 Sm3/day and 1118 Sm3/day respectively on a 19.05 mm choke. The GWR was 2.5. The density of the water was 1.018 g/cc and the gas gravity 0.70 (air = 1). The flowing well head pressure was 8.75 bars and the bottom hole temperature 110.6 deg C. The well produced 10% CO2 and less than 0.1 ppm H2S.

Test #2a tested the interval 2837 - 2848 m and flowed oil at an average rate of 59 Sm3/day on a 25.4 mm choke.

Test #2b tested the intervals 2837 - 2848 m and 2825 - 2834 m and the combined intervals flowed oil and gas at an average rate of 263 Sm3/day and 28184 Sm3/day respectively on a 12.7 mm choke. The GOR was 107 Sm3/Sm3. The oil gravity was $0.867~\rm g/cc$ and the gas gravity $0.75~\rm m$

LITHOSTRATIGRAPHY (Sir HISTORY) FOR AWEISURE 30/9.68 ap and the bottom hole temperature 107 deg C. The well produced 1.3% CO2 and no H2S.