



Wellbore History

GENERAL

The Hod Pod Prospect on the northeast flank of East Hod Field was first identified in 1991 as an anomaly on the existing 2D data. Additional work and mapping defined the prospect as a stratigraphic trap in the upper chalk that appeared to be separate from the main Tor reservoir of East Hod Field. The final well objective was defined by 3D seismic data completed in April 1993 as two stacked (upper and lower) pods in the uppermost part of the chalk. They were believed to be allochthonous chalk in an upper pod (Ekofisk Formation) and a lower pod (uppermost Tor Formation).

OPERATIONS AND RESULTS

Wildcat well 2/11-10 S was drilled deviated from the centre slot (slot #4) of the Hod Platform with the Maersk Giant jack-up rig. It was spudded 28 February 1994 and drilled to TD at 4090 m (2920 m TVD RKB) in the Late Cretaceous Hod Formation. Severe problems with running the 13 3/8" casing were encountered, caused by mismatch in make between casing running tool and the casing thread. When pulling out casing centralisers and stop rings were left in the hole. The junk could not be fished and the well was sidetracked (2/11-10 S T2) from between 1397 m and 1547 m. The well was drilled with seawater down to 382 m, and with Novadril oil based mud from 382 m to TD.

Some oil shows were noted on claystone of the Hordaland Group from 1725 m and down to 1960 m. Top of the chalk, Ekofisk Formation, came in at 3900.5 m (2820.7 m TVD RKB), and oil was present. The high porosities predicted from seismic prior to drilling were present in both the Tor and Ekofisk Formations. The Ekofisk, however, had narrower pore throats than the Tor resulting in lower permeability. Oil staining was present in the cored upper Tor reservoir from 3913 m down to 3957 m. An oil column height of around 28 m (above the 95% Sw entry point) was calculated from special core analysis. The Tor Formation cored below 3957 m had lower porosity and permeability than the oil stained chalk above that point, indicating a diagenetic/lithological down-to fluid contact.

The prognosed two separate high porosity chalks were not seen in this well, however due to drilling problems the well was terminated shallower than planned and thus a second pod is not ruled out. It is thought that the lower pod is offset and that the well bore may have just penetrated it at its pinch-out.

FMT pressures from the reservoir were only 180 psi less than the virgin pressure from East Hod Field (6700psi VS 6880psi). The 2/11-10 initial reservoir pressures are more than twice the current depleted field pressures (about 3000psi), indicating that the Hod Pod prospect is indeed separate from the partially depleted Tor reservoir of East Hod Field. Since FMT pressures were slightly less than virgin pressure, the Tor reservoir in the pod prospect is not totally isolated from the Hod Field.

One 49.5 m core was retrieved from 3913 - 3962.5 m from base Ekofisk and into the Tor Formation. FMT fluid samples were taken at 3919.9 m (10 l mud and oil) and at 3953.9 m (4 l oil).

The well was permanently abandoned on 14 June 1994 as an oil discovery.

TESTING

The well was perforated in four clusters at 3915 -3915.3 m (test 1; base Ekofisk)), 3925 - 3925.3 m (test 2; Tor Formation), 3933 - 3933.3 m (test 3; Tor Formation), and 3940 - 3940.3 m (test 4; Tor Formation), each zone separately metered from the separator and meter station on the Hod Platform. Test 1 was at base Ekofisk Formation level, the other three were in the Tor Formation. A production test over 45 days was conducted. Testing gave poor results because of high water saturations.

Test 1 gave no flow

Test 2 flowed 63 Sm3/day of oil with a 55% water cut.

Test 3 flowed 13 Sm3/day of oil with a 65% water cut.

Test 4 flowed 29 Sm3/day of oil with a 47% water cut.

On average the total flow was thus 105 Sm3/day with ca 50% water and 50%

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 2/11-10 S