



Wellbore History

GENERAL

Well 35/3-7 S was drilled on the Cyclops prospect close to the Agat Discovery on the Måløy Slope in the Northern North Sea. The objective was to prove hydrocarbons in the Agat Formation (Agat 70 and Agat 80 sandstone units).

OPERATIONS AND RESULTS

Wildcat well 35/3-7 S was spudded with the semi-submersible installation Bredford Dolphin on 28 June 2009 and drilled to TD at 4051 m in the Late Jurassic Heather Formation. A 9 5/8" pilot hole was drilled from 550 m down to 836 m. A water flow incident happened at 745 m. This was expected from previous wells in the area and a Riserless Mud Recovery system (RMR) was utilized to use weighted mud from seabed. By this the water flow was taken care of in a controlled manner. When setting the 9 5/8" liner the liner was lost in the well, but it was finally cemented and successfully tested 2.0 sg EMW. Due to a stuck pipe incident on a wiper trip between wire line logging runs a technical sidetrack had to be drilled to fulfil the formation evaluation program. The sidetrack was kicked off at 3248 m, below the 9 5/8" casing shoe, and reached TD at 3777 m, ca 110 m south of the primary well bore. The well took 95.8 days vs. 61.2 days planned. The additional days were mainly caused by the lost 9 5/8" liner, the stuck pipe incident including sidetrack and 10.2 days waiting on weather before pulling anchors. The entire main well bore was drilled with KCI/GEM water based mud (WBM) and the sidetrack was drilled with Performadril WBM.

The combined results of the main bore and the sidetrack was a gas discovery in the Agat formation in the Lower Cretaceous as proven by pressure data and gas samples. The pressure data combined define a GWC at 3652 m (3573 m TVD RKB, 3548 m TVD MSL) in main bore. The sidetrack hit the reservoir below the GWC. Moderate visible oil shows were primarily related to the core chips from the gas-bearing reservoir in the well 35/3-7 S. Weak oil shows on cuttings persisted below the GWC at 3652.8 m, throughout the Agat 70 Unit and down to top Agat 60 unit at 3738 m. Otherwise, weak oils shows were recorded above the reservoir in the Agat 110 unit at 3432 to 3443 m, and below the reservoir in the Agat 50 unit at 3790 to 3795 m and the Åsgard Formation at 3981 to 4003 m.

In the well 35/3-7 S, two cores were drilled out within the members Agat 80 and top of Agat 70. No core was taken in the sidetrack. The MDT tool was run to take pressure and fluid samples. In the main well bore 14 stable pressure points over the Agat 70-780 unit and a water sample from 3713 m were obtained. In the sidetrack an MDT water and mud filtrate was recovered in a sample from 3662 m. After that a dual packer mini-DST was carried out and gas samples were taken from 3646.9 m, while samples from 3646.8 and 3675.3 m only retrieved mud filtrate.

Preliminary estimates indicate that the size of the discovery in 35/3-7 S, together with previously proven gas discoveries in the licence (35/3-2 and 35/3-4, collectively called Agat, proven in 1980), is between three and eight billion standard cubic metres of recoverable gas.

The well was permanently abandoned on 1 October 2009 as a gas discovery.

TESTING

No drill stem test was performed.

LITHOSTRATIGRAPHY & HISTORY FOR WELL: 35/3-7 S