



**Wellbore History**

**GENERAL**

Well 30/6-23 was drilled on the Beta South structure on the Brage Horst and south of the Veslefrikk Field in the North Sea. The Beta structure is surrounded by producing oil fields or commercial discoveries. On Beta, oil has been discovered in the Middle Jurassic Brent Group reservoirs in fault-block traps. The oil is contained in two main sub-structures, i.e. the Beta Saddle and Beta South, comprising several smaller sub-compartments. The discovery well on Beta was the 30/6-5 well, but this well was not tested due to the detection of H2S in the RFT samples. Later wells proved oil in the Beta Saddle without encountering H2S. The Beta Saddle is characterized by a multicontact reservoir having prominent shale barriers. There are also slight differences in fluid composition between the two compartments, which suggests that the saddle through is acting as a structural spill point at the top Etive level. Primary target for the well was Base Brent Group prognosed to come in at 2891 m. Secondary objective was top Statfjord prognosed at 3141 m. OWC was expected at 2880 m.

**OPERATIONS AND RESULTS**

Appraisal well 30/6-23 was spudded 29 April 1990 by the semi-submersible rig Transocean 8 and drilled to TD at 3209.5 m in the Early Jurassic Eirikson Formation. Shallow gas was indicated from mud gas and MWD at several levels between 440 m and 603 m. Gas influx occurred during a wiper trip back from 601 m to the 30" casing shoe at 261 m. Otherwise drilling proceeded without any significant issues. The well was drilled with spud mud down to 378 m and with KCl/polymer mud from 378 m to TD.

Formation tops came in approximately as prognosed. Top Viking Group was encountered 2534 m and consisted of 82 m Draupne Formation and 177 m Heather Formation. The target Brent Group came in at 2793 m and oil was proven in sandstones by logs, RFT pressure gradient and tests all through. No clear OWC was encountered, but good oil shows were seen in a sandstone as deep as 2896 m at the base of the Oseberg Formation. The Statfjord Formation was water bearing.

Six cores were cut: five in the interval 2787 to 2902 m in the Brent Group and one at 3018 to 3045 m in the Cook Formation. Good shows were recorded in cores 1 to 5, but core 6 (Cook Formation) displayed only weak shows on single sand grains. Segregated RFT samples were taken at 2843 m, 2871.5 m, 2899.5 m, 3016.5 m, and 3177.5 m.

The well was suspended on 1 July 1990 as an oil appraisal well.

**TESTING**

Three DST tests were performed.

DST 1 tested the interval 2860 - 2881 m in the middle Oseberg formation. It produced 1375 Sm3 oil and 74500 Sm3 gas /day through a 25.4 mm choke. The separator GOR was 54 Sm3/Sm3 and the oil density was 0.840 g/cm3. The maximum flowing temperature measured at sensor depth 2761.4 m was 120.6 deg C.

DST 2 tested the interval 2827 - 2853 m in the upper Oseberg/Etive formations. It produced 849 Sm3 oil and 56500 Sm3 gas /day through a 60.64 mm choke. The separator GOR was 66 Sm3/Sm3 and the oil density was 0.840 g/cm3. The maximum flowing temperature measured at sensor depth 2755.7 m was 120.1 deg C.

DST 3 tested the interval 2803 - 2812 m in the Ness formation. It produced 1040 Sm3 oil and 64200 Sm3 gas /day through a 20.64 mm choke. The separator GOR was 62 Sm3/Sm3 and the oil density was 0.840 g/cm3. The maximum flowing temperature measured at sensor depth 2750.8 m was 120.8 deg C.

**LITHOSTRATIGRAPHY & HISTORY FOR WELL: 30/6-23**