



## Wellbore History

### GENERAL

Well 6407/7-2 was drilled on the Njord A-structure in the southern part of the Halten Terrace. The Njord structure is located ca 30 km west of the Draugen Field. The primary objectives of the well were to test the reservoir properties of the pre-Tilje sequence and to find the oil-water contact in the central part of the A-structure. By this the volumetric potential of the structure could be established. The well would furthermore obtain seismic calibration to the base Cretaceous and intra Jurassic and intra Triassic events. It should penetrate a flat seismic event at approximately 2570 ms TWT. A Rogn Formation sand unit was expected at 2598 +/- 65 m.

### OPERATIONS AND RESULTS

Well 6407/7-2 was spudded with the semi-submersible installation Polar Pioneer on 20 November 1986. The 36" hole was drilled to 361 m where the MWD showed an inclination of 7.1 degrees. A respud was thus decided. The well was respudded on 20 November and drilled without significant problems to TD at 3320 m in the Triassic Red Beds. It was drilled with spud mud down to 780 m and with KCl/polymer mud from 780 m to TD.

No Rogn Formation was encountered. Hydrocarbons were encountered in two different pressured reservoir zones in the Middle to Early Jurassic. The upper reservoir was a 14 m gas/condensate zone in the Ile Formation from 2697.5 m to 2711.5 m. A segregated RFT sample from this zone recovered gas and condensate. The lower and main reservoir zone was encountered from 2771 to 2877.5 m in the Tilje Formation and contained oil. Two drill stem testes were performed in this zone. The Åre Formation was encountered at 2877.5 m and consisted of sandstones with minor claystones and siltstones. The Åre Formation sandstones were cemented and with low porosity. The logs and cores proved the Åre Formation to be water bearing, although moderate quality RFT pressure data gave an oil gradient in the interval 2896 to 2925 m.

Eleven cores were cut in the well with a total recovery of 171.25 m (87%). The first core was cut in the interval 2673 - 2688 m, two cores in the interval 2701 - 2742 m, and 8 cores in the interval 2775 - 2915 m. A segregated RFT sample from 2701.9 m recovered 2.1 Sm<sup>3</sup> gas, 1.85 l condensate, and 0.9 l filtrate.

The well was suspended on 21 January 1987 as a possible future development well or for long term testing. It is classified as an oil appraisal well.

### TESTING

Two drill stem tests were performed in the Tilje Formation main reservoir.

DST 1 in the interval 2869.8 - 2878.8 m produced 125 Sm<sup>3</sup> oil and 23750 Sm<sup>3</sup> gas /day through a 12.7 mm choke. The GOR was 190, the oil density was 0.829 g/cm<sup>3</sup>, and the gas gravity was 0.744 (air = 1). The CO<sub>2</sub> content was 1.5 percent and the H<sub>2</sub>S content was 0.2 ppm. The down hole temperature measured in the test was 109.0 deg C.

DST 2 in the interval 2801.5 - 2819.5 m produced 575 Sm<sup>3</sup> oil and 105800 Sm<sup>3</sup> gas /day through a 12.7 mm choke. The GOR was 184, the oil density was 0.825 g/cm<sup>3</sup>, and the gas gravity was 0.0.685 (air = 1). The CO<sub>2</sub> content was 1.5 percent and the H<sub>2</sub>S content was 1.5 ppm. The down hole temperature measured in the test was 111.2 deg C.

## LITHOSTRATIGRAPHY & HISTORY FOR WELL: 6407/7-2