Formation Tops Groups NORDLAND GP TOP **NAUST FM TOP** 400 500 600 700 800 900 1000 1100 1200 1300 1400 KAI FM TOP 1500 1600 1700 1800 RDALAND GP TOP **BRYGGE FM TOP** 1900

GP TOP

<mark>SHET</mark>LAND GP TOP

VIKING GP TOP

FANGST GP TOP

BÅT GP TOP

TD (m)

2000

2100

2200

2400 -

2500

2600

Wellbore History

GENERAL

Well 6507/7-5 is located on the northern part of the Halten Terrace off shore Mid Norway and was drilled to appraise the northern extension of the 6507/7-2 Heidrun Discovery. The primary objective was Middle and Lower Jurassic sands in a downthrown fault block located NNW of the 6507/7-2 well. Prognosed top Jurassic was at 2308 m.

Secondary objective was the Båt Group at an expected depth of 2394 m. Based on site survey, shallow gas could appear at 512, 570, 618, 746, and 799 m. Prognosed TD was 2675 m.

OPERATIONS AND RESULTS

Appraisal well 6507/7-5 was spudded with the semi-submersible installation Nortrym on 16 January 1986 and drilled to TD at 2660 in the Early Jurassic Tilje Formation. The 26" hole section was drilled without marine riser to 1040 m, first as a 17 1/2" pilot hole with MWD logging, then opening up to 26". No shallow gas was recorded. The MWD quality was good, so no electric logging was performed in this section. Since no riser was used, all returns were to seafloor down to 1040 m. No significant problems were encountered during operations. The well was drilled with seawater and pre-hydrated gel down to 1040 m and with KCl/polymer mud from 1040 m to TD.

No sandstone of importance was encountered above the Middle Jurassic. A hiatus from Late Cretaceous Turonian to Late Jurassic Oxfordian/Kimmeridgian was observed at 2310 m. Sandstones of the Fangst Group were encountered at 2353 to 2424 m. Analysis of cores and logs indicated good to excellent porosity and permeability in these sandstones, with the best reservoir properties towards the top, in the Garn Formation.

Poor oil shows were observed in sandstone lenses in core no 1 from the Shetland Group (2255.0 - 2282.5 m), which consisted mainly of claystones. Visible shows of uniform light brown oil were observed on cores from top of the Garn Formation down to 2400 m. Below this depth the shows were occasionally more patchy, until at 2422 m core depth (2427 m loggers depth) where there was no longer any visible oil. The lowermost oil observed on the cores was not believed to represent the true OWC, but a change into impermeable lithologies. One RFT run was carried out in the 12 1/4" hole with the objective of establishing the OWC. Intersection of the oil and water gradients from the RFT pressure data suggested an OWC at ca 2475 m. The Early Jurassic Tilje Formation of the Båt Group was penetrated at 2473.5 m and proved to be dry without shows.

Seventeen cores from the Late Cretaceous through to the Early Jurassic were cut from 2255 to 2644.5 m with 89.4 % recovery. Attempts were made to obtain a water sample on RFT at 2485 and 2485.5 m, but these were unsuccessful due to malfunction of the sample chamber.

The well was permanently abandoned on 6 March 1986 as an oil and gas appraisal.

TESTING

Three DST tests were performed in this well.

DST 1 tested the interval 2418 m to 2424 m in the base of the Garn Formation. It produced at maximum rates 751 Sm3 oil and 52358 Sm3 separator gas /day through a 2x1" choke. The separator GOR was 70 Sm3/Sm3, the oil gravity was 27.9 deg API, and the separator gas gravity was 0.65. The gas contained maximum 2% CO2 and no detectable H2S.

DST 2, was aborted due to a leak in the kill line and was re-tested as DST 2A.

TARE FM TOP

TANG FM TOP

paretikie eini tod

GARN FM TOP

NOTE FM-TOP ROR FM TOP

TILJE FM TOP

DST 2A tested the interval 2355 m to 2375 m in the top of the Garn LITHOSTRATIGRAPHY &rrHISTORYUEORMWELL 1a659074735il and 85630 Sm3 separator gas /day through a 2x1" choke. The separator GOR was 87 Sm3/Sm3, the oil gravity was 31.3 deg API, and the separator gas gravity was 0.68. The gas contained maximum 2% CO2 and no detectable H2S.

None of the tests produced any bottom sediments or water.

The DST maximum recorded temperatures from the final flows of DST1 and DST2A were 85.7 deg C at 2421 m. and 82.6 deg C at 2365 m. respectively.