General information

Wellbore name	25/5-4
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	SKIRNE
Discovery	25/5-4 Byggve
Well name	25/5-4
Seismic location	EL 8902 - 308 & SP. 660
Production licence	102
Drilling operator	Elf Petroleum Norge AS
Drill permit	661-L
Drilling facility	DYVI STENA
Drilling days	76
Entered date	22.12.1990
Completed date	07.03.1991
Plugged and abondon date	25.07.2015
Release date	07.03.1993
Publication date	15.08.2008
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	HUGIN FM
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	SLEIPNER FM
Kelly bushing elevation [m]	25.0
Water depth [m]	120.0
Total depth (MD) [m RKB]	3185.0
Final vertical depth (TVD) [m RKB]	3184.0
Maximum inclination [°]	2
Bottom hole temperature [°C]	111
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	STATFJORD GP
Geodetic datum	ED50
NS degrees	59° 36' 33.22'' N

EW degrees	2° 28' 32.07'' E
NS UTM [m]	6608163.57
EW UTM [m]	470403.24
UTM zone	31
NPDID wellbore	1691

Wellbore history

Well 25/5-4 is located approximately in the centre between the 5/5-5 Discovery and the Frøy and Skirne Fields in the northern North Sea. The prospect was defined at Intra Statfjord Formation level, consisting of two compartments offset by an E-W fault. No significant closure was expected at Base Cretaceous. The main target was the Middle Jurassic Vestland Group sandstones. Early Jurassic Statfjord sandstones was secondary target. The expected fluid was most likely oil. No shallow gas was expected.

Operations and results

Wildcat well 25/5-4 was spudded with the semi-submersible installation Dyvi Stena on 22 December 1990 and drilled to TD at 3185 m in Early Jurassic sediments of the Statfjord Formation. Only minor problems were encountered during drilling the Hordaland Group. The well was drilled with sea water and bentonite down to 1208 m, with a KCl mud from 1208 m to 2805 m, and with lignosulphonate mud from to 2805 m to TD.

The results for the main seismic markers were close to prognoses (from 17 to 36 m higher than prognosis). Sandy water bearing reservoirs were encountered in the basal Tertiary Heimdal and Ty Formations. The Vestland Group reservoir (Hugin + Sleipner Formations) was encountered from 2895 to 2941 m and was completely filled with a retrograde condensate. Extracts of core material showed a significant increase in extractable organic matter below 2932 m, and the EOM was significantly more oil-like (saturates > 55%) than the upper part of the reservoir. The Statfjord Formation proved good reservoir quality but was water bearing. Organic geochemical data proved excellent source rock characteristics in several levels throughout the Jurassic, with oil prone kerogen in the Draupne and Heather Formations, and gas - condensate prone kerogen in the Vestland Group and Statfjord Formation. The source potential of Draupne is similar to the one known in the surrounding wells, while the Heather has better characteristics. The extreme base of Heather (below 2889) exhibits a very good source rock potential. The mineralogical composition of the Draupne shales differs from the Heather formation (X-ray diffraction), the latter being more calcareous (18 to 26% of calcite instead of 0 to 14%). Vitrinite reflection indicates beginning of the oil window (%Ro = 0.55) at ca 3000 m in the Dunlin Group, below the best source rocks in the well.

Three conventional cores were cut, two from 2904 to 2949 m in the Hugin and Sleipner Formations, and one from 3059 to 3077 m at top Statfjord Formation. Segregated FMT samples were taken at 2929.5 and 2935.2 m in the Sleipner Formation. The 2 3/4 gal chambers in both samples were opened offshore and both contained about 1500 litres gas, 0.8 litres condensate and 1 litre mud filtrate.

The well was suspended on 7 March as a gas/condensate discovery. The well was planned to be re-used as a producer.

Testing

One DST tests was performed in the interval 2923 - 2933 m and flowed at a rate of 759600 Sm3/d gas and 223 Sm3/d condensate through a 20.3 mm choke. The gas-condensate ratio was ca 3500 Sm3/Sm3. The condensate density was 0.76 g/cm3 and the gas gravity (air = 1) was 0.70. The maximum flowing temperature was 105 deg C.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
510.00	3185.00

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	2904.0	2921.9	[m]
2	2922.0	2947.4	[m]
3	3059.0	3075.6	[m]

Total core sample length [m]	59.8
Cores available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
145	NORDLAND GP
453	UTSIRA FM
1057	HORDALAND GP
1255	SKADE FM
1267	NO FORMAL NAME
1357	GRID FM
1387	NO FORMAL NAME
2111	ROGALAND GP
2111	BALDER FM
2142	SELE FM
2176	LISTA FM
2251	HEIMDAL FM
2340	LISTA FM
2377	VÅLE FM
2434	TY FM
2559	SHETLAND GP
2559	HARDRÅDE FM
2762	KYRRE FM
2775	CROMER KNOLL GP
2775	ÅSGARD FM
2783	VIKING GP
2783	DRAUPNE FM
2860	HEATHER FM
2895	VESTLAND GP

2895	HUGIN FM
2920	SLEIPNER FM
2941	DUNLIN GP
2941	BURTON FM
3052	STATFJORD GP

Geochemical information

Document name	Document format	Document size [MB]
1691_1	pdf	0.21

Documents - older Norwegian Offshore Directorate WDSS reports and other related documents

Document name	Document format	Document size [MB]
1691_01_WDSS_General_Information	pdf	0.47
1691_02_WDSS_completion_log	pdf	0.19

Documents - reported by the production licence (period for duty of secrecy expired)

Document name	Document format	Document size [MB]
1691_25_5_4_COMPLETION_REPORT	PDF	124.10
1691_25_5_4_COMPLETION_REPORT_AND_LOG	PDF	9.55

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2933	2923	20.6

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0	14.000		29.000	104

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	223	759600	0.760	0.720	3398

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CAL LDL GST GR	1199	2789
CBL	680	1199
CBL VDL	1050	2794
CNL LDT NGT	2792	2987
CST GR	1521	2783
CST GR	2794	3153
DIP GR	1199	2791
DLL ML GR	2792	2987
GR BHC DIL	1199	2790
GR DIP	2792	3180
GR SP SLS DIL	2792	3181
MWD - GR RES DIR	206	3185
NGT CNL LDT	2885	3181
PSV	1800	3181
RFT	2897	2932
RFT GR	2792	3181

Casing and leak-off tests

Casing type	Casing diam. [inch]	Casing depth [m]	Hole diam. [inch]	Hole depth [m]	LOT/FIT mud eqv. [g/cm3]	Formation test type
CONDUCTOR	30	206.0	36	207.0	0.00	LOT
INTERM.	13 3/8	1198.0	17 1/2	1200.0	1.98	LOT
INTERM.	9 5/8	2794.0	12 1/4	2796.0	1.80	LOT
LINER	7	3173.0	8 1/2	3185.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
1291	1.24	22.0	7.8	WATER BASED	11.01.1991

1463	1.25	25.0	8.8	WATER BASED	14.01.1991
2620	1.33	30.0	12.7	WATER BASED	23.01.1991
2620	1.33	33.0	13.2	WATER BASED	24.01.1991
2620	1.34	33.0	11.7	WATER BASED	25.01.1991
2898	1.20	38.0	15.6	WATER BASED	07.02.1991
2900	1.20	34.0	13.7	WATER BASED	11.02.1991
2985	1.20	40.0	18.6	WATER BASED	11.02.1991
3015	1.25	37.0	14.7	WATER BASED	12.02.1991
3057	1.25	42.0	18.1	WATER BASED	14.02.1991

Pressure plots

The pore pressure data is sourced from well logs if no other source is specified. In some wells where pore pressure logs do not exist, information from Drill stem tests and kicks have been used. The data has been reported to the NPD, and further processed and quality controlled by IHS Markit.

Document name	Document format	Document size [MB]
1691_Formation_pressure_(Formasjonstrykk)	pdf	0.24