

**General information**

Wellbore name	6507/11-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Field	ÅSGARD
Discovery	6507/11-1 Midgard
Well name	6507/11-1
Seismic location	713 - 464 x-over 713 - 263
Production licence	062
Drilling operator	Saga Petroleum ASA
Drill permit	301-L
Drilling facility	WEST VENTURE OLD
Drilling days	89
Entered date	13.09.1981
Completed date	10.12.1981
Release date	10.12.1983
Publication date	13.12.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	ILE FM
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	TILJE FM
Kelly bushing elevation [m]	33.0
Water depth [m]	298.0
Total depth (MD) [m RKB]	3139.0
Final vertical depth (TVD) [m RKB]	3138.0
Maximum inclination [°]	2.8
Bottom hole temperature [°C]	111
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	GREY BEDS (INFORMAL)
Geodetic datum	ED50
NS degrees	65° 4' 43.95" N
EW degrees	7° 29' 23.31" E



NS UTM [m]	7218274.44
EW UTM [m]	428996.14
UTM zone	32
NPDID wellbore	68

Wellbore history

**General**

Wildcat well 6507/11-1 is located in the Haltenbanken area and was the third well to be drilled off shore Mid Norway. The purpose of drilling the well was to test the whole stratigraphic sequence between seabed and 500 metres below the Near-Base Jurassic reflector or into the Triassic, whichever came first.

The specific targets, represented by vertical closures, were Middle Jurassic sandstone, below the Base Cretaceous Unconformity, and Early Jurassic sandstone below the Middle Jurassic Unconformity. A possible flatspot was identified at this level. In addition, any horizon below these reflectors will, according to Saga's interpretation, be closed, and represent a possible reservoir.

The well is Type Well for the Tilje Formation.

Operations and results

Well 6507/11-1 was spudded with the semi-submersible installation West Venture on 13 September 1981 and drilled to TD at 3139 m in the Late Triassic Grey Beds. Two gas kicks occurred in the 12 1/4" section at 2125 m and 2128 m with up to 600 000 ppm gas readings observed at surface. The blow out was killed by circulating increasing mud weight in steps from 11.0 ppg to 13.2 ppg. The well was drilled with spud mud down to 460 m, with gypsum mud from 460 m to 815 m, with gypsum/polymer mud from 815 m to 1615 m, and with a lignosulphonate/causticized-lignite mud through the 12 1/4" section from 1615 m to 2300 m. In this section a number of mud additives were used in the kill well operations. The section from 2300 m to TD was drilled with a lignosulphonate mud.

The well proved the existence of a lithological sequence ranging in age from Late Triassic (Early Rhaetian) to Quaternary. The Cenozoic succession was 1794 m thick. The dominant lithology of the Nordland and Hordaland Group was clay stone, but the former was less consolidated and contained more poorly sorted sand and rock fragments. An argillaceous sandstone of Oligocene/Miocene age was encountered at 1634 m. A possible fault zone penetrated the Rogaland Group in the interval 2097 m to 2120 m, just above the Base Tertiary Unconformity. High gas readings were recorded in this fault zone. At 2351 m a 5 m interval of the Melke Formation was encountered. At 2356 m a 54 m thick Ile Formation sandstone section was penetrated followed by the Ror Formation at 2410 m and a second sandstone section, the Tilje Formation at 2498 m. The zone from 2508 m to 2523 reach core porosities well above 30% and permeabilities in the several Darcies range is typical. Both the Ile and the Tilje Formations were gas/condensate-bearing with a gas/water contact at 2526 m. RFT pressure gradients indicated a common pressure system for the two reservoir sandstone sections. A 374 m thick coal unit (the Åre Formation) consisting of interbedded sand-, silt- and clay stone and coal/carbonaceous clay stone was found overlying the Triassic Grey Beds, which extend down to TD.

Five conventional cores were cut in the interval 2502.1 m to 2544.0 m in the Tilje Formation. A number of reservoir fluid samples were taken by means of the RFT tool. Only the samples from the depths 2401.5 m and 2526.0 m were found nearly representative. They contained gas and condensate at a GCR of ca 17000 Sm³/Sm³ and 15000 Sm³/Sm³ respectively. The sample at 2532 m, which was taken just below the estimated GWC, consisted of water with only traces of gas as expected.

The well was permanently abandoned on 10 December 1981 as a gas/condensate discovery.

Testing

Perforation of the lower part of the Middle Jurassic Sandstone, 2396 - 2402 m, yielded 764.000 m³ gas and 138 m³ of condensate per day through a 51/64 inch choke. The testing equipment limited the production rate.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
470.00	3139.00

Cuttings available for sampling?	YES
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Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	2502.7	2508.8	[m]
2	2509.8	2511.4	[m]
3	2514.3	2517.0	[m]
4	2520.0	2524.0	[m]
5	2527.7	2543.0	[m]

Total core sample length [m]	29.7
Cores available for sampling?	YES

Core photos

2502-2507m



2507-2508m



2509-2511m



2514-2517m



2520-2524m



2527-2532m



2532-2537m



2537-2542m



2542-2543m

Palynological slides at the Norwegian Offshore Directorate



Sample depth	Depth unit	Sample type	Laboratory
1820.0	[m]	DC	OD
1830.0	[m]	DC	OD
2008.4	[m]	C	
2012.7	[m]	C	
2026.5	[m]	C	
2048.3	[m]	C	
2056.0	[m]	C	
2071.4	[m]	C	
2094.0	[m]	C	
2100.0	[m]	C	
2100.0	[m]	DC	OD
2100.5	[m]	C	
2110.0	[m]	DC	
2119.0	[m]	DC	
2119.0	[m]	DC	OD
2124.0	[m]	DC	
2128.0	[m]	DC	
2132.0	[m]	DC	
2137.0	[m]	DC	
2140.0	[m]	DC	
2140.0	[m]	DC	OD
2146.0	[m]	DC	
2158.0	[m]	DC	
2158.0	[m]	DC	OD
2162.3	[m]	C	
2170.0	[m]	DC	
2182.0	[m]	DC	
2182.0	[m]	DC	OD
2186.0	[m]	DC	
2194.0	[m]	DC	
2200.0	[m]	DC	
2200.0	[m]	DC	OD
2205.0	[m]	DC	
2206.0	[m]	DC	
2212.0	[m]	DC	
2218.0	[m]	DC	
2218.0	[m]	DC	OD
2224.0	[m]	DC	
2236.0	[m]	DC	



2239.0 [m]	DC	
2242.0 [m]	DC	OD
2245.0 [m]	DC	
2245.0 [m]	DC	
2250.0 [m]	DC	
2254.0 [m]	DC	
2260.0 [m]	DC	
2260.0 [m]	DC	OD
2263.0 [m]	DC	
2281.0 [m]	DC	
2281.0 [m]	DC	OD
2287.0 [m]	DC	
2293.0 [m]	DC	
2299.0 [m]	DC	
2302.0 [m]	DC	OD
2308.0 [m]	DC	
2317.0 [m]	DC	
2320.0 [m]	DC	
2320.0 [m]	DC	OD
2326.0 [m]	DC	
2335.0 [m]	DC	
2341.0 [m]	DC	
2341.0 [m]	DC	OD
2344.0 [m]	DC	
2347.5 [m]	C	
2351.3 [m]	C	
2353.0 [m]	DC	
2356.0 [m]	DC	
2362.0 [m]	DC	
2362.0 [m]	DC	OD
2371.0 [m]	DC	
2374.0 [m]	DC	
2380.0 [m]	DC	
2380.0 [m]	DC	OD
2383.0 [m]	DC	
2389.0 [m]	DC	
2398.0 [m]	DC	
2398.0 [m]	DC	
2400.0 [m]	DC	
2401.0 [m]	DC	OD



2407.0	[m]	DC	
2416.0	[m]	DC	
2419.0	[m]	DC	
2423.0	[m]	DC	
2425.0	[m]	DC	
2434.0	[m]	DC	
2440.0	[m]	DC	
2440.4	[m]	C	
2461.0	[m]	DC	
2466.0	[m]	DC	
2479.0	[m]	DC	
2484.5	[m]	C	

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
331	NORDLAND GP
331	NAUST FM
1407	KAI FM
1614	HORDALAND GP
1614	BRYGGE FM
2010	ROGALAND GP
2010	TARE FM
2080	TANG FM
2125	SHETLAND GP
2125	SPRINGAR FM
2351	VIKING GP
2351	MELKE FM
2358	FANGST GP
2358	ILE FM
2410	BÅT GP
2410	ROR FM
2498	TILJE FM
2596	ÅRE FM
3074	GREY BEDS (INFORMAL)

Composite logs





Document name	Document format	Document size [MB]
68	pdf	0.47

Geochemical information

Document name	Document format	Document size [MB]
68_1	pdf	0.73
68_2	pdf	4.12

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

Document name	Document format	Document size [MB]
68_01_WDSS_General_Information	pdf	0.10
68_02_WDSS_completion_log	pdf	0.24

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

Document name	Document format	Document size [MB]
68_01_Completionreport	pdf	8.27
68_02_Completionlog	pdf	2.13

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2396	2402	16.0

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

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0		765000			





Logs

Log type	Log top depth [m]	Log bottom depth [m]
BHC GR CAL	807	1613
CBL VDL CCL GR	1570	1983
CORIBAND	2350	2720
CST	1623	2295
CST	2305	3120
CYBERLOOK	2350	2720
DIL BHC GR SP	330	812
DLL MSFL GR	2284	2726
FDC CNL GR	456	813
GR	330	457
HDT	1598	2299
HDT	2284	3137
ISF BHC GR	2284	2728
ISF BHC MSFL GR SP	1598	2298
ISF MSFL BHC GR	2280	3137
ISF MSFL BHC SP	807	1613
LDL CNL GR	1598	2299
LDL CNL GR	2384	2527
LDL CNL GR	2680	3138
NGT	2284	3138
RDC GR	807	1614
RFT	0	0
RFT	0	0
RFT	2325	2606
VELOCITY	340	3134

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	456.0	36	457.0	1.19	LOT
SURF.COND.	20	807.0	26	815.0	1.10	LOT
INTERM.	13 3/8	1600.0	17 1/2	1615.0	1.81	LOT
INTERM.	9 5/8	2286.0	12 1/4	2300.0	1.87	LOT
LINER	7	2625.0	8 1/2	3139.0	0.00	LOT

**Drilling mud**

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
730	1.13	52.0		seawater	
800	1.10	42.0		seawater	
2220	1.58	52.0		seawater	
2470	1.46	10.0		seawater	

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]
68 Formation pressure (Formasjonstrykk)	pdf	0.29

