

**General information**

Wellbore name	6507/11-3
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Field	ÅSGARD
Discovery	6507/11-1 Midgard
Well name	6507/11-3
Seismic location	SG 8458 - 412 SP. 526
Production licence	062
Drilling operator	Saga Petroleum ASA
Drill permit	469-L
Drilling facility	TREASURE SAGA
Drilling days	71
Entered date	03.06.1985
Completed date	15.08.1985
Release date	15.08.1987
Publication date	13.12.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL/GAS
Discovery wellbore	NO
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	GARN FM
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	ILE FM
Kelly bushing elevation [m]	26.0
Water depth [m]	290.0
Total depth (MD) [m RKB]	3250.0
Final vertical depth (TVD) [m RKB]	3250.0
Maximum inclination [°]	2.8
Bottom hole temperature [°C]	107
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	GREY BEDS (INFORMAL)
Geodetic datum	ED50
NS degrees	65° 1' 59.8" N
EW degrees	7° 30' 42.34" E



NS UTM [m]	7213169.06
EW UTM [m]	429908.44
UTM zone	32
NPDID wellbore	470

Wellbore history

**General**

Well 6507/11-3 was designed to test the Beta Fault compartment of the Midgard Discovery off shore Mid Norway. The Beta segment is a part of the Midgard horst. This horst is defined by NNV trending normal faults. It is separated from the other compartments by a ENE trending cross fault and exhibits true vertical closure at Base Cretaceous level. The primary target was reservoir rocks of the Middle Jurassic Fangst Group with the objective to establish the GWC within a good sand and to perform a DST in a formation not previously being tested (the Ile Formation). The location was chosen relatively high on the structure in case the hydrocarbon contact for Beta was different from what was seen in the Alpha and Gamma structures. The well should reach Triassic rocks or drill to 500 m below the coal reflector. The proposed depth was 3250 m. The pre-drill classification of the well was wildcat.

The well is Type Well for the Ile and Not Formation of the Fangst Group.

Operations and results

Well 6507/11-3 was spudded with the semi-submersible installation Treasure Saga on 3 June 1985 and drilled to TD at 3250 m in the Triassic Grey Beds. While drilling the reservoir, mud weight had to be raised gradually to 1.6 g/cm³ due to high trip gas. Approximately 2 weeks were lost due to a work conflict. The well was drilled with spud mud down to 421 m, with gel mud from 421 m to 868 m, with gypsum/polymer mud from 868 m to 2615 m, and with gel mud from 2615 m to TD.

The average background gas down to the 20" casing point was 0.4% to 0.8% with peaks at 505 m (3.43%), 540 m (1.08%), 576 m (1.76%) and 663 m (1.97%). Methane was the only gas component present. The well proved mainly claystones down to the Fangst Group. The Cainozoic with a total thickness of 1771 m overlies a 271 m Cretaceous sequence. Late Jurassic consisted of 14.5 m hot shale of the Spekk Formation and 39.5 m of silty claystones of the Melke Formation. The Fangst Group consisted of the Garn, Not, and Ile Formations as in the other wells in the area. The Garn and the Ile Formations had very good reservoir properties, while the Not Formation is a non-reservoir zone in between. Two mudstone SWC's at 2170 m and 2197 m in the Shetland Group had oil shows. The first oil shows below this depth were observed in the Melke Formation at 2393 m. The Fangst Group had gas above a thin oil zone. The GOC was encountered at 2514 m, and the OWC at 2525.5 m. There were no shows below OWC.

Six cores were cut in the Fangst Group and another three cores were cut in the Tilje Formation. Six segregated fluid samples were taken on FMT; four at 2426.5 m, 2456 m, 2473.5 m, and 2512 m in the gas/condensate zone, and at two at 2516.3 m and at 2520 m in the oil zone.

The well was permanently abandoned on 15 August 1985 as an oil/gas discovery

Testing

Three drill stem tests were performed; one in the oil zone and two in the gas zone.

DST 1 tested the oil zone from 2519.0 m to 2520.5 m. Rates were increased in steps up to 1500 Sm³/day to investigate gas coning behaviour. The GOR without gas coning was ca 140 Sm³/Sm³. Stock tank oil gravity was 0.8506 g/cm³.

DST 2 tested the interval 2495.7 m to 2508.7 in the gas zone and flowed 564000 Sm³ gas/day through a 14.3 mm choke in the main flow. The gas/condensate ratio of the fluid was 6850 Sm³/Sm³.

DST 3 tested the interval from 2413.0 m to 2419.5 m in the gas zone and flowed 584000 Sm³ gas/day through a 14.3 mm choke in the main flow. The gas/condensate ratio of the fluid was 7100 Sm³/Sm³.



Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
430.00	3250.00

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	2428.0	2437.5	[m]
2	2437.5	2456.0	[m]
3	2456.0	2465.3	[m]
4	2467.0	2494.5	[m]
5	2494.5	2522.0	[m]
6	2522.0	2536.8	[m]
7	2636.0	2643.9	[m]
8	2650.0	2660.2	[m]
9	2668.5	2677.5	[m]

Total core sample length [m]	134.2
Cores available for sampling?	YES

Core photos



2428-2433m



2433-2437m



2437-2443m



2442-2447m



2447-2452m



2452-2456m



2456-2461m



2461-2465m



2467-2472m



2472-2477m



2477-2482m



2482-2487m



2487-2492m



2492-2494m



2494-2499m



2499-2504m



2504-2509m



2509-2514m



2514-2519m



2519-2522m



2522-2527m



2527-2532m



2532-2536m



2634-2640m



2640-2643m



2650-2656m



2656-2660m



2668-2674m



2674-2677m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1910.0	[m]	DC	STRAT
1920.0	[m]	SWC	STRAT
1930.0	[m]	DC	STRAT
1950.0	[m]	DC	STRAT
1965.0	[m]	SWC	STRAT
1974.0	[m]	SWC	STRAT
1980.0	[m]	DC	STRAT
2003.0	[m]	SWC	STRAT



2010.0	[m]	DC	STRAT
2022.0	[m]	SWC	STRAT
2026.0	[m]	SWC	STRAT
2050.0	[m]	DC	STRAT
2060.0	[m]	SWC	STRAT
2070.0	[m]	DC	STRAT
2083.0	[m]	SWC	STRAT
2086.0	[m]	SWC	STRAT
2091.0	[m]	SWC	STRAT
2109.0	[m]	SWC	STRAT
2120.0	[m]	DC	STRAT
2130.0	[m]	SWC	STRAT
2143.0	[m]	SWC	STRAT
2150.0	[m]	DC	STRAT
2160.0	[m]	DC	STRAT
2170.0	[m]	SWC	STRAT
2180.0	[m]	DC	STRAT
2190.0	[m]	DC	STRAT
2197.0	[m]	SWC	STRAT
2210.0	[m]	DC	STRAT
2220.0	[m]	DC	STRAT
2227.0	[m]	SWC	STRAT
2240.0	[m]	DC	STRAT
2251.0	[m]	SWC	STRAT
2260.0	[m]	DC	STRAT
2267.0	[m]	SWC	STRAT
2280.0	[m]	DC	STRAT
2285.0	[m]	SWC	STRAT
2289.0	[m]	SWC	STRAT
2295.0	[m]	DC	STRAT
2295.0	[m]	SWC	STRAT
2310.0	[m]	DC	STRAT
2320.0	[m]	DC	STRAT
2331.0	[m]	SWC	STRAT
2340.0	[m]	DC	STRAT
2359.0	[m]	SWC	STRAT
2366.5	[m]	SWC	STRAT
2372.0	[m]	SWC	STRAT
2383.0	[m]	SWC	STRAT
2393.5	[m]	SWC	STRAT



2404.0	[m]	SWC	STRAT
2413.0	[m]	SWC	STRAT
2420.0	[m]	SWC	STRAT
2439.6	[m]	C	STRAT
2457.0	[m]	C	STRAT
2465.0	[m]	C	STRAT
2467.0	[m]	C	STRAT
2475.0	[m]	C	STRAT
2481.7	[m]	C	STRAT
2491.1	[m]	C	STRAT
2499.0	[m]	C	STRAT
2508.4	[m]	C	STRAT
2517.5	[m]	C	STRAT
2530.0	[m]	C	STRAT
2536.7	[m]	C	STRAT
2539.0	[m]	DC	STRAT
2546.0	[m]	SWC	STRAT
2551.0	[m]	DC	STRAT
2559.5	[m]	SWC	STRAT
2569.0	[m]	DC	STRAT
2579.0	[m]	SWC	STRAT
2588.0	[m]	SWC	STRAT
2600.0	[m]	SWC	STRAT
2611.0	[m]	DC	STRAT
2620.0	[m]	DC	STRAT
2631.5	[m]	SWC	STRAT
2634.0	[m]	C	STRAT
2642.8	[m]	C	STRAT
2645.0	[m]	SWC	STRAT
2653.9	[m]	C	STRAT
2669.0	[m]	C	STRAT
2676.7	[m]	C	STRAT
2677.5	[m]	SWC	STRAT
2682.5	[m]	SWC	STRAT
2686.0	[m]	DC	STRAT
2695.0	[m]	DC	STRAT
2701.0	[m]	DC	STRAT
2707.0	[m]	DC	STRAT
2718.0	[m]	SWC	STRAT
2727.5	[m]	SWC	STRAT



2734.0	[m]	DC	STRAT
2747.0	[m]	SWC	STRAT
2749.0	[m]	DC	STRAT
2758.0	[m]	DC	STRAT
2761.0	[m]	SWC	STRAT
2773.0	[m]	DC	STRAT
2779.0	[m]	DC	STRAT
2785.0	[m]	DC	STRAT
2790.7	[m]	SWC	STRAT
2800.0	[m]	DC	STRAT
2803.0	[m]	SWC	STRAT
2815.0	[m]	DC	STRAT
2818.3	[m]	SWC	STRAT
2821.0	[m]	DC	STRAT
2825.5	[m]	SWC	STRAT
2830.0	[m]	SWC	STRAT
2842.0	[m]	DC	STRAT
2848.0	[m]	DC	STRAT
2854.0	[m]	DC	STRAT
2863.0	[m]	DC	STRAT
2869.0	[m]	DC	STRAT
2878.0	[m]	DC	STRAT
2884.0	[m]	DC	STRAT
2887.0	[m]	SWC	STRAT
2899.0	[m]	DC	STRAT
2906.5	[m]	SWC	STRAT
2913.0	[m]	SWC	STRAT
2916.0	[m]	SWC	STRAT
2919.6	[m]	SWC	STRAT
2924.5	[m]	SWC	STRAT
2929.7	[m]	SWC	STRAT
2938.0	[m]	DC	STRAT
2943.9	[m]	SWC	STRAT
2953.0	[m]	DC	STRAT
2957.6	[m]	SWC	STRAT
2968.0	[m]	DC	STRAT
2973.2	[m]	SWC	STRAT
2980.0	[m]	DC	STRAT
2989.0	[m]	DC	STRAT
2998.4	[m]	SWC	STRAT



3001.0	[m]	DC	STRAT
3010.0	[m]	DC	STRAT
3016.0	[m]	DC	STRAT
3022.0	[m]	DC	STRAT
3031.0	[m]	DC	STRAT
3034.0	[m]	SWC	STRAT
3041.7	[m]	SWC	STRAT
3052.0	[m]	DC	STRAT
3058.0	[m]	DC	STRAT
3064.0	[m]	DC	STRAT
3072.0	[m]	SWC	STRAT
3079.0	[m]	DC	STRAT
3085.0	[m]	DC	STRAT
3091.0	[m]	SWC	STRAT
3100.0	[m]	DC	STRAT
3106.0	[m]	DC	STRAT
3114.5	[m]	SWC	STRAT
3121.0	[m]	DC	STRAT
3127.0	[m]	DC	STRAT
3136.0	[m]	DC	STRAT
3139.0	[m]	SWC	STRAT
3142.0	[m]	SWC	STRAT
3148.0	[m]	DC	STRAT
3157.0	[m]	DC	STRAT
3165.2	[m]	SWC	STRAT
3169.0	[m]	DC	STRAT
3178.0	[m]	DC	STRAT
3182.0	[m]	SWC	STRAT
3189.5	[m]	SWC	STRAT
3196.5	[m]	SWC	STRAT
3203.5	[m]	SWC	STRAT
3213.0	[m]	SWC	STRAT
3220.0	[m]	DC	STRAT
3223.0	[m]	SWC	STRAT
3232.0	[m]	DC	STRAT
3241.0	[m]	DC	STRAT
3247.0	[m]	DC	STRAT
3250.0	[m]	DC	STRAT

**Oil samples at the Norwegian Offshore Directorate**

Test type	Bottle number	Top depth MD [m]	Bottom depth MD [m]	Fluid type	Test time	Samples available
DST	DST1	2519.00	2521.00		01.08.1985 - 16:30	YES
DST	DST2	2495.00	2508.00		05.08.1985 - 17:00	YES
DST	DST3	2412.50	2419.50		10.08.1985 - 10:53	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
316	NORDLAND GP
316	NAUST FM
1395	KAI FM
1754	HORDALAND GP
1754	BRYGGE FM
1963	ROGALAND GP
1963	TARE FM
2038	TANG FM
2087	SHETLAND GP
2087	SPRINGAR FM
2290	CROMER KNOLL GP
2290	LANGE FM
2347	LYR FM
2358	VIKING GP
2358	SPEKK FM
2373	MELKE FM
2412	FANGST GP
2412	GARN FM
2457	NOT FM
2472	ILE FM
2536	BÅT GP
2536	ROR FM
2630	TILJE FM
2825	ÅRE FM
3193	GREY BEDS (INFORMAL)



Geochemical information

Document name	Document format	Document size [MB]
470_1	pdf	3.57

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

Document name	Document format	Document size [MB]
470_01_WDSS_General_Information	pdf	0.29
470_02_WDSS_completion_log	pdf	0.21

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

Document name	Document format	Document size [MB]
470_6507_11_3_COMPLETION_REPORT_AND_LOG	pdf	14.82

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2519	2521	25.4
2.0	2496	2509	31.8
3.0	2413	2420	38.1

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0	23.000	8.000	23.000	90
2.0	24.000	12.000	20.000	90
3.0	25.000	10.000	24.000	90

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	1490	29500	0.847	0.720	198





2.0		1480000		0.690	
3.0		1740000		0.670	

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL	730	1902
CBL VDL	1700	2599
CDL CNL GR	1902	2615
CDL CNL GR	2659	3242
COREGUN	2428	2677
CORGUN	2635	2679
DIFL LS BHC CDL CBL GR	849	1918
DIFL LS BHC GR	1902	2615
DIFL LS BHC GR	2659	3243
DIPLOG	1902	2609
DIPLOG	2659	3243
DLL MLL GR	2320	2610
FMT	2414	2536
FMT	2442	3226
MWD - GR RES DIR	415	3246
VSP	1750	3250

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	414.0	36	449.0	0.00	LOT
SURF.COND.	20	849.0	26	868.0	1.52	LOT
INTERM.	13 3/8	1903.0	17 1/2	1918.0	1.83	LOT
INTERM.	9 5/8	2600.0	12 1/4	2615.0	1.79	LOT
OPEN HOLE		3250.0	8 1/2	3250.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
449	1.05	47.0	25.0	WATER BASED	07.06.1985



763	1.17	50.0	29.0	WATER BASED	10.06.1985
868	1.18	43.0	33.0	WATER BASED	10.06.1985
873	1.15	14.0	25.0	WATER BASED	02.07.1985
1300	1.20	16.0	20.0	WATER BASED	02.07.1985
1580	1.23	18.0	22.0	WATER BASED	02.07.1985
1918	1.40	67.0	19.0	WATER BASED	03.07.1985
1918	1.40	60.0	18.0	WATER BASED	04.07.1985
1918	1.40	12.0	18.0	WATER BASED	08.07.1985
1918	1.40	67.0	19.0	WATER BASED	03.07.1985
1918	1.40	60.0	18.0	WATER BASED	04.07.1985
1918	1.40	12.0	18.0	WATER BASED	08.07.1985
1918	1.40	65.0	25.0	WATER BASED	02.07.1985
2151	1.53	25.0	19.0	WATER BASED	08.07.1985
2318	1.53	37.0	23.0	WATER BASED	08.07.1985
2402	1.60	36.0	17.0	WATER BASED	11.07.1985
2545	1.30	58.0	10.0	WATER BASED	29.07.1985
2623	1.26	17.0	10.0	WATER BASED	22.07.1985
2644	1.21	17.0	10.0	WATER BASED	22.07.1985
2680	1.20	17.0	10.0	WATER BASED	22.07.1985

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]
470 Formation pressure (Formasjonstrykk)	pdf	0.27

