

**General information**

Wellbore name	6507/5-4
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Field	SKARV
Discovery	6507/5-1 Skarv
Well name	6507/5-4
Seismic location	xline 1865 & inline 1157
Production licence	212
Drilling operator	BP Amoco Norge AS
Drill permit	995-L
Drilling facility	STENA DEE
Drilling days	65
Entered date	10.02.2001
Completed date	15.04.2001
Plugged date	15.04.2001
Release date	15.04.2003
Publication date	28.06.2007
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL/GAS
Discovery wellbore	NO
1st level with HC, age	EARLY CRETACEOUS
1st level with HC, formation	LANGE FM
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	GARN FM
Kelly bushing elevation [m]	25.0
Water depth [m]	421.0
Total depth (MD) [m RKB]	3812.0
Final vertical depth (TVD) [m RKB]	3811.2
Maximum inclination [°]	6.7
Bottom hole temperature [°C]	124
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	ÅRE FM
Geodetic datum	ED50



NS degrees	65° 41' 44.78" N
EW degrees	7° 34' 13.62" E
NS UTM [m]	7286930.97
EW UTM [m]	434346.79
UTM zone	32
NPDID wellbore	4209

Wellbore history

**General**

Exploration wells 6507/6-1 and 6507/6-2 were drilled by Saga in the period 1986 to 1991. Both were plugged and abandoned as dry with shows. The Amoco operated exploration well 6507/5-1 well was completed in 1998 and was suspended as an oil and gas discovery in the Jurassic and Cretaceous. The discovery was named Skarv while the Cretaceous part of it has informally been named Gråsel. In 1999, well 6507/5-2 was drilled by BP Amoco to appraise Skarv. The well was plugged and abandoned as a gas well. The Snadd structure was explored by the 6507/5-3 well in June 2000 and plugged and abandoned as a gas discovery.

Well 6507/5-4 was drilled on the southern C-segment of the Skarv structure. The main reservoir target was sandstone in the Early - Middle Jurassic Garn, Ile and Tilje Formations. In the discovery case the objective was to gather the data required to allow confident oil reserves estimates. High-risk secondary targets were the Cretaceous Lysing and Lange Formations.

Operations and results

Wildcat well 6507/5-4 was spudded with the semi-submersible installation Stena Dee on 10 February 2001 and drilled to TD at 3812 m (3820 m loggers depth) in the Early Jurassic sediments of the Åre Formation. The well was drilled with seawater and hi-vis sweeps down to 522 m, with KCl/glycol mud from 522 m to 1468 m, and with KCl mud from 1468 m to TD.

Well 6507/5-4 successfully completed a logging program across Cretaceous secondary targets in the 12.25" hole, and a logging and coring programme of the primary Jurassic targets in 8.5" hole. Oil shows of variable strength were recorded from 3060 in the Lange Formation and down to TD. Oil and condensate were discovered in poor quality Early Cretaceous sands. The thin Lysing Formation was tight without shows. Oil and gas were discovered from 3513 m, top of the primary Garn reservoir target, while Ile and Tilje were water-wet. A gas/oil contact was indicated at 3542 m based on logs and cores, but no OWC was seen.

Four conventional cores were cut in the Garn, Not, Ile, Ror, and Tilje Formations in the interval 3512 m to 3724 m. The core-log shift was ca + 7 m for all four cores. MDT fluid samples were taken in the Lange Formation as well as in the Fangst Group. Organic geochemical analyses of these indicated a similar source rock, but with a somewhat higher maturity in the Lange Formation petroleum.

The well bore was plugged back to 1450 m on 15 April 2001 as an oil/gas appraisal of the Skarv Discovery. Since no OWC had been found a sidetrack, 6507/5-4 A, was decided to appraise the Garn down-dip oil leg.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1470.00	3812.00

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	3512.5	3534.5	[m]
2	3535.0	3594.5	[m]
3	3594.0	3679.0	[m]
4	3678.0	3722.5	[m]

Total core sample length [m]	211.0
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1470.0	[m]	DC	RESLAB
1500.0	[m]	DC	RESLAB
1530.0	[m]	DC	RESLAB
1560.0	[m]	DC	RESLAB
1590.0	[m]	DC	RESLAB
1620.0	[m]	DC	RESLAB
1650.0	[m]	DC	RESLAB
1680.0	[m]	DC	RESLAB
1710.0	[m]	DC	RESLAB
1740.0	[m]	DC	RESLAB
1770.0	[m]	DC	RESLAB
1800.0	[m]	DC	RESLAB
1830.0	[m]	DC	RESLAB
1860.0	[m]	DC	RESLAB
1890.0	[m]	DC	RESLAB
1920.0	[m]	DC	RESLAB
1950.0	[m]	DC	RESLAB
1980.0	[m]	DC	RESLAB
2000.0	[m]	DC	RESLAB
2030.0	[m]	DC	RESLAB
2050.0	[m]	DC	RESLAB
2080.0	[m]	DC	RESLAB
2100.0	[m]	DC	RESLAB
2130.0	[m]	DC	RESLAB
2150.0	[m]	DC	RESLAB



2180.0	[m]	DC	RESLAB
2200.0	[m]	DC	RESLAB
2230.0	[m]	DC	RESLAB
2250.0	[m]	DC	RESLAB
2280.0	[m]	DC	RESLAB
2300.0	[m]	DC	RESLAB
2320.0	[m]	DC	RESLAB
2350.0	[m]	DC	RESLAB
2380.0	[m]	DC	RESLAB
2400.0	[m]	DC	RESLAB
2430.0	[m]	DC	RESLAB
2450.0	[m]	DC	RESLAB
2480.0	[m]	DC	RESLAB
2500.0	[m]	DC	RESLAB
2530.0	[m]	DC	RESLAB
2550.0	[m]	DC	RESLAB
2580.0	[m]	DC	RESLAB
2600.0	[m]	DC	RESLAB
2630.0	[m]	DC	RESLAB
2650.0	[m]	DC	RESLAB
2670.0	[m]	DC	RESLAB
2701.0	[m]	DC	RESLAB
2725.0	[m]	DC	RESLAB
2749.0	[m]	DC	RESLAB
2776.0	[m]	DC	RESLAB
2785.0	[m]	DC	RESLAB
2800.0	[m]	DC	RESLAB
2815.0	[m]	DC	RESLAB
2830.0	[m]	DC	RESLAB
2842.0	[m]	DC	RESLAB
2860.0	[m]	DC	RESLAB
2875.0	[m]	DC	RESLAB
2890.0	[m]	DC	RESLAB
2905.0	[m]	DC	RESLAB
2920.0	[m]	DC	RESLAB
2935.0	[m]	DC	RESLAB
2950.0	[m]	DC	RESLAB
2964.0	[m]	DC	RESLAB
2980.0	[m]	DC	RESLAB
2995.0	[m]	DC	RESLAB



3010.0	[m]	DC	RESLAB
3025.0	[m]	DC	RESLAB
3028.9	[m]	SWC	RESLAB
3046.8	[m]	SWC	RESLAB
3070.0	[m]	DC	RESLAB
3089.9	[m]	SWC	RESLAB
3101.7	[m]	SWC	RESLAB
3111.0	[m]	SWC	RESLAB
3129.9	[m]	SWC	RESLAB
3145.0	[m]	DC	RESLAB
3160.0	[m]	DC	RESLAB
3190.0	[m]	DC	RESLAB
3205.0	[m]	DC	RESLAB
3225.1	[m]	SWC	RESLAB
3235.0	[m]	DC	RESLAB
3244.4	[m]	SWC	RESLAB
3265.0	[m]	DC	RESLAB
3331.0	[m]	DC	RESLAB
3346.0	[m]	DC	RESLAB
3727.0	[m]	DC	RESLAB
3739.0	[m]	DC	RESLAB
3748.0	[m]	DC	RESLAB
3754.0	[m]	DC	RESLAB
3766.0	[m]	DC	RESLAB
3772.0	[m]	DC	RESLAB
3781.0	[m]	DC	RESLAB
3796.0	[m]	DC	RESLAB
3802.0	[m]	DC	RESLAB
3812.0	[m]	DC	RESLAB

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
446	NORDLAND GP
446	NAUST FM
1398	KAI FM
1819	HORDALAND GP
1819	BRYGGE FM
2002	ROGALAND GP



2002	TARE FM
2047	TANG FM
2102	SHETLAND GP
2102	SPRINGAR FM
2186	NISE FM
2576	KVITNOS FM
2788	CROMER KNOLL GP
2788	LYSING FM
2793	LANGE FM
3364	LYR FM
3371	VIKING GP
3371	MELKE FM
3513	FANGST GP
3513	GARN FM
3581	NOT FM
3609	ILE FM
3632	BÅT GP
3632	ROR FM
3687	TILJE FM
3774	ÅRE FM

Geochemical information

Document name	Document format	Document size [MB]
4209_1	pdf	4.70
4209_2	pdf	4.25

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

Document name	Document format	Document size [MB]
4209_6507_5_4_COMPLETION_LOG	.pdf	1.93
4209_6507_5_4_COMPLETION_REPORT	.PDF	0.71

Logs

Log type	Log top depth [m]	Log bottom depth [m]
HRLA DSI GR SP EMS GPIT	420	3475





HRLA DSI GR SP EMS GPIT	3300	3820
IPLT GR	1460	3473
IPLT GR	3498	3820
LWD - CWR GR	519	2203
LWD - MPR GR	1700	3512
MDT GR	2788	3245
MDT GR	3514	3621
MDT GR	3514	3575
MDT GR	3562	3811
MDT GR	3566	3582
MSCT GR	3028	3245
VSP	445	3460
VSP GR	3350	3810
VSP GR	3765	3810

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	519.0	36	522.0	0.00	LOT
SURF.COND.	20	1461.0	26	1466.0	1.62	LOT
INTERM.	9 5/8	3494.0	12 1/4	3501.0	2.01	LOT
OPEN HOLE		3820.0	8 1/2	3820.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
519	0.00	1.0		SPUD MUD	
1051	0.00	1.0		SPUD MUD	
1466	0.00	1.0		SPUD MUD	
1623	0.00	15.0		KCL	
1635	1.39	24.0		KCL	
2143	0.00	20.0		KCL	
2203	0.00	20.0		KCL	
2648	1.61	27.0		KCL	
2850	1.61	25.0		KCL	
2999	1.61	30.0		KCL	
3271	1.61	20.0		KCL	



3488	1.61	27.0		KCL	
3500	1.62	36.0		KCL	
3535	1.30	17.0		KCL	
3709	1.63	25.0		KCL	
3812	1.34	20.0		KCL	
3883	1.25	0.2		WATER/BRINE	
3883	1.28	12.0		KCL	

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]
4209 Formation pressure (Formasjonstrykk)	PDF	0.28

