General information

Wellbore name	6406/1-2
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Discovery	6406/1-2 (Sklinna)
Well name	6406/1-2
Seismic location	NA01 M2 - 3D inline 2386-xline1600
Production licence	256
Drilling operator	Norsk Agip AS
Drill permit	1064-L
Drilling facility	DEEPSEA BERGEN
Drilling days	71
Entered date	26.06.2003
Completed date	04.09.2003
Release date	04.09.2005
Publication date	29.12.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	YES
1st level with HC, age	LATE CRETACEOUS
1st level with HC, formation	LANGE FM
Kelly bushing elevation [m]	23.0
Water depth [m]	383.0
Total depth (MD) [m RKB]	4500.0
Final vertical depth (TVD) [m RKB]	4492.0
Maximum inclination [°]	8.7
Bottom hole temperature [°C]	164
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	RED BEDS (INFORMAL)
Geodetic datum	ED50
NS degrees	64° 55' 32.23'' N
EW degrees	6° 7' 55.71'' E
NS UTM [m]	7203419.29
EW UTM [m]	364414.82

UTM zone	32
NPDID wellbore	4762

Wellbore history

General

Well 6406/1-2 was drilled on the Sklinna prospect in the Norwegian Sea ca 10 km west of the Kristin Field. The Sklinna prospect is a faulted structural closure within a huge structure at Base Cretaceous level on the Sklinna High. The area closure was about 60 km2; crestal depth at ca 4160 m msl, and structural relief of more than 600 m. Structural closure was observed on all levels from The Lysing Fm and deeper. Therefore all possible reservoir levels like the Lysing and Lange sandstones were possible targets, but the primary target was the hydrocarbon potential in the Early Jurassic sandstone reservoirs of the Båt Group.

Operations and results

Wildcat well 6406/1-2 was spudded with the semi-submersible installation Deepsea Bergen on 26 June 2003 and drilled to TD at 4500 m in the Triassic Red Beds. The well was drilled with seawater/ high viscous sweeps with seawater/PAC spud mud down to 1205 m, with a water based silicate mud (Sildril) from 1205 m to 2415 m, and with Versapro oil based mud from 2415 m to TD. In addition to Versapro, Versatrol, VersaVert, and EDC99-ESCAID were used in intervals in the oil-based section. No shallow gas was observed.

No significant sand development was encountered above the Lange Formation. The well encountered Hydrocarbon bearing sandstone of Turonian age in the Lower Lange Formation from 4163 m - 4185 m (4157 - 4181 m TVD). The Early Jurassic Båt group was not present in the well as the Early Cretaceous rested unconformably on Triassic sediments. The reservoir hydrocarbon samples taken at 4178 m were all found to have more than 90 % mud contamination. A number of different petroleum-like products were used in the oil-based drilling mud, including Versatrol, which is a trade name for Gilsonite, a natural petroleum asphalt. Due to this strong contamination the PVT program was reduced and of all the geochemical analyses only the optical analyses (e.g. vitrinite reflectance), the gases and the light hydrocarbons were unaffected. The well was found to be immature down to about 3000 m. The lean Cretaceous and Triassic sediments below this depth had relatively poor source rock potential. The chemical and isotopic composition of the gas and light hydrocarbons in the reservoir indicated a high-mature situation. Comparison with other data from the area indicated that the gasses had an affinity to the Spekk Formation, while the light hydrocarbons had some characteristics pointing to the Åre Formation. The heavier hydrocarbons (the oil) were masked by the oil-based mud and could not be characterized. Neither the Åre nor the Spekk Formations are present in the well.

No conventional core was taken in the well. Fifteen sidewall cores were retrieved out of 25 attempts. Due to tight hole and cemented formation MDT pressure test and sampling was only successful at 4178 m. Seven samples were taken, 4 MPSR, 2 SPMC and one gallon sample. Gas, condensate and mud filtrate was sampled, no formation water was observed. All samples were strongly contaminated by oil-based mud.

The well was permanently abandoned on 4 September 2003 as a gas/condensate discovery.

Testing

No drill stem test was performed in the well.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1210.00	4500.00

Cuttings available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
3350.0	[m]	DC	OD
3360.0	[m]	DC	OD
3370.0	[m]	DC	OD
3380.0	[m]	DC	OD
3395.0	[m]	DC	OD
3400.0	[m]	DC	OD
3462.0	[m]	DC	OD
3471.0	[m]	DC	OD
3483.0	[m]	DC	OD
3495.0	[m]	DC	OD
3501.0	[m]	DC	OD
3513.0	[m]	DC	OD
3530.0	[m]	DC	OD
3540.0	[m]	DC	OD
3605.0	[m]	DC	OD
3840.0	[m]	DC	OD
4224.0	[m]	DC	OD
4256.0	[m]	DC	OD
4300.0	[m]	DC	OD
4315.0	[m]	DC	OD
4350.0	[m]	DC	OD
4404.0	[m]	DC	OD
4452.0	[m]	DC	OD
4500.0	[m]	DC	OD

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
406	NORDLAND GP
406	NAUST FM
1588	KAI FM
2084	HORDALAND GP
2084	BRYGGE FM
2458	ROGALAND GP

2458	TARE FM
2519	TANG FM
2574	SHETLAND GP
2574	SPRINGAR FM
2648	NISE FM
2730	KVITNOS FM
3368	CROMER KNOLL GP
3368	LYSING FM
3387	LANGE FM
4232	GREY BEDS (INFORMAL)
4478	RED BEDS (INFORMAL)

Composite logs

Document name	Document format	Document size [MB]
4762	pdf	0.58

Geochemical information

Document name	Document format	Document size [MB]
4762_1	pdf	1.00

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

Document name	Document format	Document size [MB]
4762_6406_1_2_COMPLETION_LOG	.pdf	2.48
4762_6406_1_2_COMPLETION_REPORT	.PDF	1.67

Logs

Log type	Log top depth [m]	Log bottom depth [m]
IPLT AIT	4072	4506
MDT	4178	4178
MDT IPLT	4177	4186

MSCT	4155	4474
MWD - LWD GR RES DIR	3908	4500
MWD LWD - GR DIR	3645	3852
MWD LWD - GR RES DEN NEU PWD SON	2427	3645
MWD LWD - GR RES DIR SON	454	2415
MWD LWD - GR RES SON DEN NEU PWD	3852	3908
OBDT DSI	2770	4500
VSP APS	1900	4480

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	455.0	36	455.0	0.00	LOT
SURF.COND.	20	1199.0	26	1201.0	1.50	LOT
INTERM.	13 3/8	2404.0	17 1/2	2415.0	1.87	LOT
INTERM.	9 5/8	3901.0	12 1/4	3908.0	2.00	LOT
LINER	7	4140.0	8 1/2	4140.0	2.07	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
578	1.47	18.0		WBM (SILDRIL)	
858	1.80	29.0		OBM (VERSAPRO)	
1210	1.03			SPUD MUD	
1210	1.03			SPUD MUD	
2415	1.53	24.0		SILDRIL	
2835	1.70	50.0		OIL (ENVIRON)	
3575	1.70	45.0		OIL (ENVIRON)	
3835	1.75	47.0		OIL (ENVIRON)	
3955	1.91	55.0		OBM (VERSAPRO)	
4140	1.89	46.0		OBM (VERSAPRO)	
4494	1.98	35.0		OBM (VERSAPRO)	
4500	1.98	34.0		OBM (VERSAPRO)	

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]
4762_Formation_pressure_(Formasjonstrykk)	pdf	0.27