General information

Wellbore name	6506/3-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Well name	6506/3-1
Seismic location	DTW2000-xline7757 & inline5120
Production licence	259
Drilling operator	Norsk Chevron AS
Drill permit	1007-L
Drilling facility	BYFORD DOLPHIN
Drilling days	26
Entered date	22.07.2001
Completed date	19.08.2001
Release date	19.08.2003
Publication date	07.11.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	DRY
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	341.0
Total depth (MD) [m RKB]	3667.0
Final vertical depth (TVD) [m RKB]	3662.0
Maximum inclination [°]	4.5
Bottom hole temperature [°C]	121
Oldest penetrated age	LATE CRETACEOUS
Oldest penetrated formation	LANGE FM
Geodetic datum	ED50
NS degrees	65° 48' 20.75'' N
EW degrees	6° 44' 32.64'' E
NS UTM [m]	7300300.07
EW UTM [m]	396769.02
UTM zone	32
NPDID wellbore	4344

Wellbore history

General

Well 6506/3-1 is located west of the Skarv Discovery on the western Margin of the Dønna Terrace, off shore Mid Norway. The primary objective of the well was to demonstrate the economic potential of two prognosed hydrocarbon reservoirs in Structure A in the Brygge (Paleogene) and Lysing (Cretaceous) Formations. The corresponding prospects were called the Harran and the Grong-A prospects respectively. In addition, Cretaceous Nise and Lange Formation sands were seen as high-risk leads.

Operations and results

Wildcat well 6506/3-1 was spudded with the semi-submersible installation Byford Dolphin on 22 July 2001 and drilled to TD at 3667 m in the Early Cretaceous Lange Formation. Operations went without significant problems. The well was drilled with seawater and hi-vis pills down to 1382 m and with Versavert oil based mud from 1382 m to TD.

The Tertiary Brygge Formation reservoir sands were not present in the well. The Brygge, Tare and 37 m of the Tang Formation contained a total of 140.5m (Measured Thickness) of diatomaceous material and volcanics. The diatomite unit has an average porosity of 38% (max.60%) and very low permeability. SEM and XRD results show diatomite to be the dominant lithofacies in this interval with some component of volcanic glass. The Opal A to Opal CT transformation has only partly taken place at the base of the unit. The unit was water filled and significantly over-pressured. The fluid content in the Brygge unit was crudely identified as water, due to a water kick. MDT sampling of the Brygge unit was not possible to perform due to the physical properties of the encountered diatomite lithofacies. Hydrocarbon migration through the formation could only be inferred from the gas log data, which indicated a significant amount of methane present when the formation back-flowed. The well found 21 m gross Lysing reservoir sands from 3090 m to 3110.5 m by logging, coring and SWC. The formation shows an upward increase in grain-size from claystones to medium grained sandstones. At best some 3 m of the uppermost sands had porosity of 20%. The fluid type after recovering MDT samples from 3091.2 m (3 bottles of fluids) were identified to be water containing traces of phenols and organic acids. The water was very fresh with a total salinity of 11366 mg/l and with a low $CaCO_3$ saturation at initial conditions. The water was highly unsaturated in gas: no free gas was found in any of the samples. Methane and longer chain hydrocarbons were present. The samples had 6-9 vol-% contamination from the oil-based mud. The high-risk Nise and Lange sands were not present in the well.

A single core was cut in the interval 3101.5 m to 3171.5 m in the Lysing Formation and into the Lange Formation.

The well was permanently abandoned on 19 August 2001 as a dry well.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1390.00	3662.00

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	3101.5	3169.0	[m]

Total core sample length [m]	67.5
Cores available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
366	NORDLAND GP
366	NAUST FM
1624	HORDALAND GP
1624	BRYGGE FM
1657	ROGALAND GP
1657	TARE FM
1756	TANG FM
1797	SHETLAND GP
1797	SPRINGAR FM
2023	NISE FM
2300	KVITNOS FM
3090	CROMER KNOLL GP
3090	LYSING FM
3111	LANGE FM

Composite logs

Document name	Document format	Document size [MB]
4344	pdf	0.52

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

Document name	Document format	Document size [MB]
4344_6506_3_1__COMPLETION_LOG	.pdf	6.19
4344_6506_3_1__COMPLETION_REPORT	.pdf	4.14

Logs

Log type	Log top depth [m]	Log bottom depth [m]
AIT PEX HNGS	1374	3665
CST GR	1447	3650
DSI GR AMS OBDT	1374	3665
LWD - CDR	453	1382
LWD - CDR	3171	3667
LWD - ISONIC CDR	1382	3101
MDT GR	1655	3107
PEX	1590	2000
VSP GR	790	3660

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	451.0	36	454.0	0.00	LOT
INTERM.	13 3/8	1374.0	17 1/2	1382.0	1.84	LOT
OPEN HOLE		3667.0	8 1/2	3667.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
456	1.03			SEAWATER	
1382	1.20			SW/GEL	
1698	1.57	32.0		OBM	
3128	1.57	45.0		OBM	
3437	1.60	41.0		OBM	
3667	1.60	37.0		OBM	

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
3104.41	[m]
3106.00	[m]
3106.64	[m]
3108.25	[m]
3108.50	[m]

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]
4344_Formation_pressure_(Formasjonstrykk)	PDF	0.28