General information

Wellbore name	34/4-3
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	34/4-3
Seismic location	SG 8020 - 409 SP 580
Production licence	057
Drilling operator	Saga Petroleum ASA
Drill permit	306-L
Drilling facility	DYVI ALPHA
Drilling days	166
Entered date	16.10.1981
Completed date	30.03.1982
Release date	30.03.1984
Publication date	01.07.2004
Purpose - planned	WILDCAT
Reentry	NO
Content	DRY
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	366.0
Total depth (MD) [m RKB]	4460.0
Final vertical depth (TVD) [m RKB]	4457.0
Maximum inclination [°]	5
Bottom hole temperature [°C]	127
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	LUNDE FM
Geodetic datum	ED50
NS degrees	61° 36' 32.95'' N
EW degrees	2° 7' 34.42'' E
NS UTM [m]	6831114.85
EW UTM [m]	453647.63
UTM zone	31
NPDID wellbore	423

Wellbore history

General

Exploration well 34/4-3 is located in the Marulk Basin north-northwest of the Snorre Field. It was drilled as the third well on the Gamma Structure and had a wedge structure between the Base Cretaceous Unconformity and the Late Jurassic Unconformity as primary target. Secondary objectives were to penetrate the Brent Equivalent and the Statfjord formation. The well is located on the downthrown side of a NE-SW trending major fault, and the sealing nature of this fault was critical for a closure of the reservoir.

Operations and results

Wildcat well 34/4-3 was spudded with the semi-submersible installation Dyvi Alpha on 16 October 1981 after waiting on location for two weeks due to bad weather. The 26" section was drilled with a 21 1/4" BOP installed but after pulling the riser and the BOP a 26" bit was run in the hole since the underreamer did not perform. Drilling of the 17 1/2" section was delayed by nearly two weeks due to the 18 3/4" BOP not meeting requirements. During drilling of the 12 1/4" section electrical problems on the draw works as well as mud pump breakdowns and high pressures was experienced. Drilling the 8 1/2" section included 4 core runs, killing a water/methane kick at 3555 m, changing leaking seals on riser and two intermediate log runs. TD was reached at 4460 m in Late Triassic sediments. The well was drilled with seawater/bentonite/gel down to 516 m, with gel/gypsum from 512 m to 1019 m, with gypsum/polymer from 1019 m to 2209 m, and with lignosulfonate mud from 2209 m to TD.

A methane gas/water kick occurred at 3550 m when the first Late Jurassic sandstone stringer was entered, giving 21 % total gas. A more continuous Late Jurassic sand was drilled into at 3565 m. Two cores (18 m) were cut in this 27 m thick sandstone sequence. The cores consist of shallow marine laminated shale/silt/sandstone. The sandstone is grey, very fine to fine grained with average porosity 10%, permeability maximum 40 mD and water bearing.

A second Late Jurassic sandstone was drilled through between 3704 -3788 m. The sandstone is white, fine to coarse grained, poor sorted and poor porosity, no shows. Minor shows are reported from the Late Jurassic and the basal part of the Cretaceous, occurring from 3524 to 3716 m. Sandstones of core 1 and the limestone in Cromer Knoll Group generally have no stain, but a very weak to weak, whitish yellow to yellowish white fluorescence, yielding no cut to a whitish - milky, very slow streaming cut; and no to slight odour.

The Brent Formation sand was encountered at 3987 m. Two sand sequences, 53 m and 68 m thick separated with 20 m shale, were drilled through. Core No. 3 was cut from the upper part. The sandstone was grey to white, very fine to fine grained, well sorted with calcite and illite cement. Average porosity was 15.6%, with permeability up to 5.8 mD. The Statfjord Formation was penetrated from 4353 m. One core (core No. 4) was cut. The sandstone was light grey to medium grey, very fine to very coarse grained, poor sorted, kaolinitic and with calcite cement. Average porosity was 9.7%, permeability up to 9.6 mD. Thesandstone was water bearing. No fluid samples were taken on wire line. The well was permanently abandoned as a dry well on 30 March 1982.

Testing

No drill stem test was performed

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
520.00	4460.00

Cuttings available for sampling?	NO

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	3567.0	3576.2	[m]
2	3576.2	3584.7	[m]
3	3990.9	4006.8	[m]
4	4358.0	4365.5	[m]

Total core sample length [m]	41.1
Cores available for sampling?	YES

Core photos


3568-3573m


3574-3576m


3577-3582m


3583-3584m


3991-3996m


4003-4006m


4359-4364m


4365-4366m


3996-4002m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
540.0	[m]	DC	RRI
830.0	[m]	DC	RRI

1110.0	[m]	DC	RRI
1420.0	[m]	DC	RRI
1700.0	[m]	DC	RRI
2000.0	[m]	DC	RRI
2300.0	[m]	DC	RRI
2600.0	[m]	DC	RRI
2900.0	[m]	DC	RRI
3120.0	[m]	DC	RRI
3300.0	[m]	DC	RRI
3450.0	[m]	DC	RRI
3479.0	[m]	SWC	RRI
3491.0	[m]	DC	RRI
3507.0	[m]	SWC	RRI
3528.0	[m]	SWC	RRI
3530.0	[m]	DC	RRI
3535.0	[m]	SWC	RRI
3541.0	[m]	SWC	RRI
3576.4	[m]	SWC	RRI
3608.0	[m]	SWC	RRI
3624.0	[m]	SWC	RRI
3665.0	[m]	SWC	RRI
3700.0	[m]	SWC	RRI
3761.0	[m]	DC	RRI
3768.0	[m]	SWC	RRI
3794.0	[m]	DC	RRI
3800.0	[m]	DC	RRI
3807.0	[m]	SWC	RRI
3828.0	[m]	SWC	RRI
3830.0	[m]	DC	RRI
3852.0	[m]	SWC	RRI
3854.0	[m]	DC	RRI
3890.0	[m]	DC	RRI
3920.0	[m]	DC	RRI
3924.0	[m]	SWC	RRI
3950.0	[m]	DC	RRI
3962.0	[m]	DC	RRI
3974.8	[m]	C	RRI
4004.1	[m]	C	RRI
4022.3	[m]	C	RRI
4052.6	[m]	C	RRI

4055.0	[m]	SWC	RRI
4073.8	[m]	C	RRI
4094.1	[m]	C	RRI
4103.0	[m]	DC	RRI
4223.0	[m]	DC	RRI
4345.0	[m]	SWC	RRI
4358.0	[m]	SWC	RRI
4408.0	[m]	SWC	RRI
4433.0	[m]	DC	RRI

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
391	NORDLAND GP
1231	UTSIRA FM
1243	HORDALAND GP
1727	ROGALAND GP
1727	BALDER FM
1769	LISTA FM
1891	SHETLAND GP
3512	CROMER KNOLL GP
3526	VIKING GP
3526	DRAUPNE FM
3784	HEATHER FM
3987	BRENT GP
4169	DUNLIN GP
4169	DRAKE FM
4226	COOK FM
4257	BURTON FM
4281	AMUNDSEN FM
4353	STATFJORD GP
4410	HEGRE GP
4410	LUNDE FM

Composite logs

Document name	Document format	Document size [MB]
423	pdf	0.77

Geochemical information

Document name	Document format	Document size [MB]
423_1_GEOCHEMICAL_EVALUATION_OF_SAGA_34_4_3 WELL	pdf	6.18
423_2_Total_Organic_Carbon_and_Kerogen_Analysis	pdf	0.84
423_3	pdf	2.45
423_4	pdf	0.37
423_5	pdf	2.45
423_6	pdf	0.37
423_7	pdf	0.12
423_8	pdf	0.43

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

Document name	Document format	Document size [MB]
423_01_WDSS_General_Information	pdf	0.18
423_02_WDSS_completion_log	pdf	0.27

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

Document name	Document format	Document size [MB]
423_34_4_3_COMPLETION_REPORT_AND_LOG	pdf	18.16

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL GR	1770	2365
CST	3407	4455
DLL MSFL GR	3960	4460
FDC CNL GR	1006	2209
FDC CNL GR	2193	3412
FDC CNL GR	3684	4460

FDC CNT GR	3390	3684
GR	366	516
HDT	3390	4413
ISF BHC GR	516	1017
ISF BHC GR	1006	2208
ISF BHC GR	2193	3407
ISF BHC GR	3390	3682
ISF BHC NGT GR	3390	4459
RFT	3390	4413
VSP	725	4459

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	516.0	36	516.0	0.00	LOT
SURF.COND.	20	1006.0	26	1019.0	1.52	LOT
INTERM.	13 3/8	2197.0	17 1/2	2209.0	1.76	LOT
INTERM.	9 5/8	3388.0	12 1/4	3406.0	1.90	LOT
OPEN HOLE		4460.0	8 1/2	4460.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
555	1.10			water based	
990	1.10			water based	
1420	1.18			water based	
2080	1.28			water based	
2340	1.32			water based	
2800	1.34			water based	
3300	1.26			water based	
3570	1.48			water based	
3880	1.51			water based	
4300	1.56			water based	

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
4358.80	[m]
4359.60	[m]
4365.30	[m]
4364.06	[m]
4358.07	[m]
3990.00	[m]
4365.00	[m]
3998.10	[m]
4359.00	[m]
4006.50	[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]
423_Formation_pressure_(Formasjonstrykk)	pdf	0.23