

**General information**

Wellbore name	1/3-11
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Discovery	1/3-11 (Ipswich)
Well name	1/3-11
Seismic location	inline 9958 & crossline 21324 på settet VGCM0401
Production licence	274
Drilling operator	DONG E&P Norge AS
Drill permit	1179-L
Drilling facility	MÆRSK GUARDIAN
Drilling days	95
Entered date	28.05.2008
Completed date	30.08.2008
Release date	30.08.2010
Publication date	30.08.2010
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	PALEOCENE
1st level with HC, formation	FORTIES FM
Kelly bushing elevation [m]	42.0
Water depth [m]	72.0
Total depth (MD) [m RKB]	3595.0
Final vertical depth (TVD) [m RKB]	3507.0
Maximum inclination [°]	20.3
Bottom hole temperature [°C]	140
Oldest penetrated age	PALEOCENE
Oldest penetrated formation	EKOFISK FM
Geodetic datum	ED50
NS degrees	56° 50' 58.47" N
EW degrees	2° 43' 15.43" E
NS UTM [m]	6300817.06



EW UTM [m]	482979.33
UTM zone	31
NPDID wellbore	5806

Wellbore history

General

The 1/3-11 Ipswich well was drilled in the Central Graben of the North Sea about 9 km south of the 1/3-10 Oselvar well, which confirmed oil in a similar geological setting to that of the Ipswich prospect. The primary objective of the 1/3-11 well was to determine the presence and nature of recoverable hydrocarbons in the Forties Formation Sandstone reservoir expected to exist along the western flank of the Ipswich salt dome.

Operations and results

Wildcat well 1/3-11 was spudded with the jack-up installation Mærsk Galant on 28 May 2008 and drilled to 3289 m in the Paleocene Våle Formation. The well path was drilled with a slight S shape after the originally planned surface location was moved to avoid potential shallow gas. Due to unexpected lithology the original hole penetrated most of an hydrocarbon-bearing reservoir sand in the well without cores being taken. Therefore it was decided to make a technical coring side-track, in which also fluid samples would be obtained. The sidetrack was denoted technical (1/3-11 T2) as coring was the main objective. It was kicked off at 1330 m and drilled to final TD at 3595 m in the Paleocene Ekofisk Formation. The well was drilled with seawater and pre-hydrated bentonite down to 825 m, with KCl/polymer mud from 825 m to 1306 m, and with Carbo SEA oil based mud from 1306 m to TD, including the technical sidetrack.

The well penetrated the clays and claystones (with sand interbeds) of the Nordland Group, the claystones of the Hordaland Group, and the claystones, tuffaceous claystones and sandstones of the Rogaland Group. The latter contained the Balder Formation, the Sele Formation (which was expected to contain the target Forties Formation sandstone), the Lista Formation and the Våle Formation. The well did not penetrate sands at the stratigraphic equivalent of the target Forties Formation sandstone. Instead, a de-sanded Forties equivalent was penetrated consisting of claystone interbedded with siltstone and dolomitic limestone. However, hydrocarbon bearing sands were encountered at 3176 m within the underlying Lista formation, and these were interpreted as possible lateral equivalents of the "Mey Sandstone Member" (Andrew Formation).

Based on initial analysis of the LWD logs and wire line formation pressure measurements, it was decided to drill the coring sidetrack down dip in order to investigate also the thickness of the hydrocarbon column, lateral variation in reservoir quality and thickness, the presence of the Forties Formation sandstone down dip in addition to the Andrew Formation penetrated in the main well, in addition to the coring and sampling objectives. The Ipswich 1/3-11 T2 sidetrack kicked off in the claystones of the Nordland Group and penetrated the claystone of the Hordaland Group and claystones, tuffaceous claystones and sandstones of the Rogaland Group. The sandstones of the Rogaland Group included 37 m of Forties Formation which, unlike in the main well, was present in the sidetrack as a sandstone, in addition to 116 m of the Andrew Formation. In 1/3-11 T2 the Forties Sandstone was found hydrocarbon bearing, while the Andrew Formation was poorer and water filled.

No definite hydrocarbon contact levels were seen in the wells.

In the primary well oil shows were recorded throughout the Andrew Formation, else no



shows above background OBM was observed. In the sidetrack a show (very weak, if any) was recorded in the Vade Formation sandstone at 2594 to 2600 m, in a thin sandstone at 3215 m within the Sele Formation, and in the Forties Formation. In the sidetrack no shows above background OBM level was observed in the Andrew Formation.

At total of 93.63 m core was recovered in three cores from the interval 3288 m to 3355.7 m in the Forties and Sele Formations and 2 cores from the interval 3398.9 m to 3429.1 m in the Andrew Formation. All cores were cut in the sidetrack. No fluid samples were taken in the primary well. In the sidetrack fluid sampling resulted in the recovery of three water samples at 3415.1 m in the Andrew Formation and five oil samples at 3294.5 m in the Forties Formation Sandstone. All oil samples were heavily contaminated by oil based mud filtrate.

The well was permanently abandoned on 30 August as an oil discovery.

Testing

No drill stem test was performed.

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Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
260.00	3288.00

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	3288.0	3298.4	[m]
2	3300.0	3320.5	[m]
3	3320.6	3354.7	[m]
4	3398.9	3411.9	[m]
5	3412.8	3428.5	[m]

Total core sample length [m]	93.7
Cores available for sampling?	YES

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		0.00	0.00			YES
MDT		3294.50	0.00	OIL		YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
114	NORDLAND GP
1777	HORDALAND GP
2594	VADE FM
2600	NO FORMAL NAME
3194	ROGALAND GP
3194	BALDER FM
3205	SELE FM
3282	FORTIES FM
3319	SELE FM
3343	LISTA FM
3366	ANDREW FM
3482	VÅLE FM
3502	SHETLAND GP
3502	EKOFISK FM

Geochemical information

Document name	Document format	Document size [MB]
5806_1	pdf	5.61

Logs

Log type	Log top depth [m]	Log bottom depth [m]
GWV GR ZO-VSP	190	3278
MWD LWD - DIR INCL	114	253
MWD LWD - GR EWR DIR INCL	253	1306





MWD LWD - GR EWR PWD DI ADN SON	3121	3289
MWD LWD - PDGR GR EWR PWD ADN SO	1306	3121
RCI SP SV SL	3160	3282

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	244.0	36	253.0	0.00	LOT
SURF.COND.	18 5/8	812.0	24	825.0	0.00	LOT
INTERM.	13 3/8	1301.0	17 1/2	1330.0	1.50	LOT
INTERM.	9 5/8	3281.0	12 1/4	3285.0	1.75	LOT
OPEN HOLE		3595.0	8 1/2	3595.0	1.85	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
825	1.20			SW/PHB	
1306	1.70			KCL-Polymer	
3595	1.72			Carbo OBM	