



General information

Wellbore name	1/3-10
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Field	OSELVAR
Discovery	1/3-6 Oselvar
Well name	1/3-10
Seismic location	BPN 9202 R02 3D dataset inline 904 & crossline 3018
Production licence	274
Drilling operator	DONG E&P Norge AS
Drill permit	1154-L
Drilling facility	MÆRSK GUARDIAN
Drilling days	75
Entered date	25.10.2007
Completed date	07.01.2008
Release date	07.01.2010
Publication date	07.01.2010
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL/GAS
Discovery wellbore	NO
1st level with HC, age	PALEOCENE
1st level with HC, formation	FORTIES FM
Kelly bushing elevation [m]	45.0
Water depth [m]	72.0
Total depth (MD) [m RKB]	3288.0
Final vertical depth (TVD) [m RKB]	3288.0
Maximum inclination [°]	1.1
Bottom hole temperature [°C]	135
Oldest penetrated age	PALEOCENE
Oldest penetrated formation	LISTA FM
Geodetic datum	ED50
NS degrees	56° 55' 39.86" N
EW degrees	2° 42' 20.69" E



NS UTM [m]	6309521.94
EW UTM [m]	482089.29
UTM zone	31
NPDID wellbore	5614

Wellbore history

General

Well 1/3-10 is located on the Hidra High, ca 20 km south-south west of the Ula Field in the North Sea. It was drilled to appraise the oil and gas bearing Late Paleocene Forties Sandstone in the Oselvar structure, first discovered by the 1/3-6 well drilled by Elf Aquitaine Norway A/S in 1991. The main goal of the well was to acquire sufficient reservoir data to make a decision on future development of the Oselvar discovery.

Operations and results

Appraisal well 1/3-10 was spudded with the jack-up installation Mærsk Guardian on 25 October 2007 and drilled to TD at 3288 m in the Paleocene Lista Formation. The well was drilled and tested without significant technical problems. It was drilled with seawater / PHB down to 816 m, with KCl/Polymer mud from 816 to 1300 m, and with Carbo SEA OBM from 1300 to TD.

The top of the Hordaland Group came in deep (19 m) compared to prognosis, as did the Balder and Sele Formations of the Rogaland Group (12 m and 5 m deep respectively). More significantly, a thicker than prognosed Sele Formation resulted in the target reservoir Forties sandstone coming in at 3153 m, 24 m deep compared to prognosis. The thickness of the Forties Sandstone however, was 52 m, which is only one meter thinner than prognosed. Of this thickness 32 m was designated as net reservoir using a porosity cut-off value of 10%. The average porosity was 17.7 % and the water saturation was 44.9%. The Forties Formation contained light oil with a free water level for the area estimated at 3245 m. Shows were only recorded in the target Forties Formation sandstones.

The Forties Formation Sandstone was cored from 3159 to 3232 m with 99.8% recovery. An RCI log was run for pressure and fluid sampling. Four light oil gradients with increasing density downwards could be identified from these data. Light oil fluid samples were taken in Run 2A at two depths, 3162.2 m and 3186.3 m. Run 2D samples were taken at 3203.3 m (approximately 70% water and 30% oil), and at 3196.5 m (about 80% light oil and 20% water).

The well was plugged back for sidetracking on 7 January 2008 as an oil and gas appraisal well.

Testing

The Forties Formation was tested by an open hole ("barefoot") DST in the 8 1/2" section from 3158 to TD. The test produced 457 Sm³ oil and 212453 m³ gas /day through a 48/64" choke in the main flow period. The GOR was 465 m³/m³, the oil density was 0.791 g/cm³, and the gas gravity was 0.855 (air = 1), with 5 ppm H₂S and 2.5 % CO₂.

Cuttings at the Norwegian Offshore Directorate



Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
250.00	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	3159.0	3231.8	[m]

Total core sample length [m]	72.8
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

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
117	NORDLAND GP
1685	HORDALAND GP
3059	ROGALAND GP
3059	BALDER FM
3069	SELE FM
3153	FORTIES FM
3205	SELE FM
3228	LISTA FM

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3158	3288	19.0



Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0	9.000		38.000	

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	457	212453	0.791	0.855	465

Logs

Log type	Log top depth [m]	Log bottom depth [m]
DSL RCI SV	3162	3203
MWD LWD - ...DGR DM BAT	3153	3288
MWD LWD - PCD	117	225
MWD LWD - PCDC DGR EWR PWD	820	1300
MWD LWD - PCDC DGR EWR PWD BAT	1300	3158
MWD LWD - PWD CTN ACAL ALD EWR..	3153	3288
VSP GR	1365	3270
WGI DSL RCI	3160	3216

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	215.0	36	225.0	0.00	LOT
SURF.COND.	18 5/8	810.0	24	816.0	0.00	LOT
INTERM.	13 3/8	1294.0	17 1/2	1300.0	1.50	LOT
INTERM.	9 5/8	3153.0	12 1/4	3153.0	1.90	LOT
OPEN HOLE		3158.0	8 1/2	3288.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
211	1.04	10.0		SPUD MUD	



225	1.04	10.0		SPUD MUD	
426	1.04	21.0		SPUD MUD	
805	1.04	11.0		SPUD MUD	
816	1.20	15.0		SPUD MUD	
1252	0.00			OIL (REGULAR)	
1300	1.75	49.0		OIL (REGULAR)	
1300	1.30	17.0		POLYMER	
1732	1.75	47.0		OIL (REGULAR)	
1964	1.75	49.0		OIL (REGULAR)	
2272	1.60	46.0		OIL (REGULAR)	
2920	1.75	46.0		OIL (REGULAR)	
2949	1.75	513.0		OIL (REGULAR)	
2954	1.73	41.0		OIL (REGULAR)	
3126	1.73	49.0		OIL (REGULAR)	
3158	1.75	46.0		OIL (REGULAR)	
3176	1.73	47.0		OIL (REGULAR)	
3232	1.39	35.0		OIL (REGULAR)	
3288	1.39	37.0		OIL (REGULAR)	
3288	1.39	34.0		OIL (REGULAR)	
3355	1.71	46.0		OIL (REGULAR)	
3382	1.68	46.0		OIL (REGULAR)	
3537	1.66	49.0		OIL (REGULAR)	
3632	1.66	47.0		OIL (REGULAR)	

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]
5614 Formation pressure (Formasjonstrykk)	pdf	0.23

