

**General information**

Wellbore name	15/12-16 S
Type	EXPLORATION
Purpose	APPRAISAL
Status	RE-CLASS TO DEV
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Field	REV
Discovery	15/12-12 Rev
Well name	15/12-16
Seismic location	Varg2002-PH1&inline:1912&crossline:882
Production licence	038
Drilling operator	Talisman Energy Norge AS
Drill permit	1107-L
Drilling facility	MÆRSK GIANT
Drilling days	54
Entered date	06.02.2006
Completed date	31.03.2006
Release date	31.03.2008
Publication date	15.08.2008
Purpose - planned	APPRAISAL
Reclassified to wellbore	15/12-C-2 H
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	NO
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	INTRA HEATHER FM SS
Kelly bushing elevation [m]	40.0
Water depth [m]	87.0
Total depth (MD) [m RKB]	2961.0
Final vertical depth (TVD) [m RKB]	2897.0
Maximum inclination [°]	28.6
Bottom hole temperature [°C]	123
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SKAGERRAK FM
Geodetic datum	ED50
NS degrees	58° 1' 40.39" N
EW degrees	1° 55' 27.97" E



NS UTM [m]	6432466.91
EW UTM [m]	436472.19
UTM zone	31
NPDID wellbore	5271

Wellbore history

Well 15/12-16 S was drilled to appraise the Varg Field in the Southern Viking Graben area of the North Sea. Three wells had been drilled on the field, 15/12-12 and 15/12-13 B (gas condensate) and one dry well 15/12-13. Well 15/12-13 A failed while in the Rogaland Formation. These 3 wells delineate the Western Flank of the field, while 15/12-16 S should seek to add proven reserves in the central panel.

The primary objective for the well was to produce gas condensate from the Oxfordian reservoir in the central panel and to determine by DST whether surrounding faults form barriers to production. Secondary objectives were to acquire reservoir pressure data, formation depths, cuttings, log and drill data for reservoir description and reservoir performance prediction.

Operations and results

Well 15/12-16 S was spudded with the jack-up installation Mærsk Giant on 6 February 2006 and drilled to TD at 2961 m, 47 m into the Triassic Skagerrak Formation. No major drilling problems or incidents occurred during the drilling of the well. The 8 ½" section was drilled in one bit run. The well was drilled with seawater and KCl/polymer down to 1319 m, with Performadril WBM from 1319 m to 2835 m, and with Baradril-N WBM from 2835 m to TD.

The well encountered the top reservoir Oxfordian sandstone at 2836 m (2787 m TVD RKB), 70 m high to prognosis and encountered a reservoir section thinner than predicted (83 m MD vs. 130 m). Preliminary interpretation indicated that the top of the reservoir section was faulted out and that RZ2 is very condensed. Reservoir quality was slightly poorer than was predicted with low porosities in the lower part but is still good. Logs and MDT pressure data showed the reservoir was gas filled but no definite gas-water contact was defined.

Dull yellow/gold mineral fluorescence, poor slow white cuts and poor crush cuts were noted on the cuttings in top of the Tor Formation. In the gas filled Oxfordian sandstone dull blue white slow cloudy cut fluorescence was observed, no direct fluorescence. Otherwise there were no shows reported from the well.

No cores were cut and no wire line fluid samples were taken.

The well was suspended on 31 March 2006 as a Varg South gas producer.

Testing

The well was completed with a 7" liner across the reservoir and perforated at intervals 2850 m to 2884 m for testing. An extended testing program was carried out, with the main flow period flowing at a steady rate of 1190000 Sm³ gas/day through a 72/64" choke. The average condensate-gas ratio was 49.7 bbl/MMSCF corresponding to a GOR of ca 3600 Sm³/Sm³. Sampling results gave a condensate gravity of 52.3 deg API, a gas gravity of 0.692 with 2ppm H₂S and 2 % CO₂.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
220.00	2961.00

Cuttings available for sampling?	YES
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Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
127	NORDLAND GP
1192	UTSIRA FM
1259	HORDALAND GP
2259	ROGALAND GP
2259	BALDER FM
2268	SELE FM
2325	LISTA FM
2435	MAUREEN FM
2447	SHETLAND GP
2447	EKOFISK FM
2455	TOR FM
2581	HOD FM
2675	BLODØKS FM
2683	HIDRA FM
2693	CROMER KNOLL GP
2715	SOLA FM
2782	ÅSGARD FM
2802	VIKING GP
2802	DRAUPNE FM
2834	HEATHER FM
2914	NO GROUP DEFINED
2914	SKAGERRAK FM

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2850	2884	28.6



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

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	332	1190000		0.692	3600

Logs

Log type	Log top depth [m]	Log bottom depth [m]
AIT DSI GR	187	2962
LDL APS	2414	2961
MDT	2840	2949
MWD	2495	3019
MWD LWD - EWR GR PWD DM GYRO	187	1319
MWD LWD - GR RES DIR PWD	1319	1365
MWD LWD - GR RES DIR PWD ABG	1365	2835
MWD LWD - GR RES PWD	2835	2961
VSP (CSI)	2025	2950

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	187.0	36	191.0	0.00	LOT
SURF.COND.	13 3/8	1312.0	17 1/2	1319.0	1.80	LOT
INTERM.	9 5/8	2826.0	12 1/4	2835.0	1.20	LOT
LINER	7	2955.0	8 1/2	2961.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
0	1.10	80.0		WATER BASED	
0	1.50			WATER BASED	



0	1.50			WATER BASED	
0	1.50			WATER BASED	
0	1.03			OTHER	
0	1.50			WATER BASED	

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]
5271 Formation pressure (Formasjonstrykk)	pdf	0.23

