



General information

Wellbore name	16/2-4
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	16/2-4
Well name	16/2-4
Seismic location	ST06M02-inline 1800-crossline 660
Production licence	265
Drilling operator	StatoilHydro ASA
Drill permit	1155-L
Drilling facility	WEST EPSILON
Drilling days	69
Entered date	08.10.2007
Completed date	15.12.2007
Release date	15.12.2009
Publication date	15.12.2009
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL/GAS
Discovery wellbore	YES
1st level with HC, age	LATE CRETACEOUS
1st level with HC, formation	TOR FM
2nd level with HC, age	PRE-DEVONIAN
2nd level with HC, formation	BASEMENT
Kelly bushing elevation [m]	48.0
Water depth [m]	113.0
Total depth (MD) [m RKB]	2000.0
Final vertical depth (TVD) [m RKB]	2000.0
Maximum inclination [°]	1.97
Bottom hole temperature [°C]	91
Oldest penetrated age	PRE-DEVONIAN
Oldest penetrated formation	BASEMENT
Geodetic datum	ED50
NS degrees	58° 52' 21.5" N
EW degrees	2° 23' 24.7" E



NS UTM [m]	6526180.80
EW UTM [m]	464834.53
UTM zone	31
NPDID wellbore	5625

Wellbore history

General

Well 16/2-4 is located on the Utsira High in the North Sea. The objective of drilling 16/2-4 was to delineate the Tor Formation oil discovery made in 16/2-3 and to test the permeability and productivity of the chalk. The secondary objective was to check the presence of hydrocarbon in the basement and to test the permeability and productivity of the basement rock.

Operations and results

Well 16/2-4 was spudded with the jack-up installation West Epsilon on 8 October 2007 and drilled to TD at 2000 m, 121 m into basement rock. No major problem was encountered in the operations. The well was drilled with spud mud down to 640 m and with KCl/polymer/glycol mud from 640 m to TD. No shallow gas was observed by the ROV at the wellhead or by the MWD while drilling the 36" hole or the 17 1/2" hole.

The Tor Formation reservoir section was encountered with hydrocarbons at 1709.5 m, 12.5 m shallower than prognosed. A clear hydrocarbon contact was not seen. The best indication of an OWC was seen on cores as a disappearance of shows below 1775. The well showed that the size of the 16/2-3 discovery is likely to be in the range 5 - 10 million Sm³ recoverable oil. A series of small-scale formation tests were carried out, showing promising flow properties. Smaller amounts of oil and gas were found also in basement, but small-scale tests in the basement showed limited flow properties. Apart from the oil and gas bearing reservoirs, no significant shows were seen in the well.

Five cores were cut. The first core was cut in the Lista Formation, the second core covered the transition zones between the Lista, Våle and Ekofisk Formation, the third core was in the Tor Formation, the fourth core was in the Tor and Hod Formation, and the fifth core was in Basement. Four mini-DST runs were performed in the Tor Formation and in the Basement for pressure points and fluid sampling. Oil and water were sampled from the Tor Formation. Gas, oil and water were sampled from the Basement. The following depths were sampled (hydrocarbon type is verified only from chromatographic analyses of the oil phase): 1939 m (water), 1930 m, 1904 m (oil), 1898,1 m (oil), 1896.1 m, 1886.1 m (gas/condensate), 1727.5 m (oil), and 1710 m (water). Due to high draw-down during pumping with the wire line tools, most of the hydrocarbon samples are flashed and not representative for PVT analysis.

The well was permanently abandoned on 15 December as a gas/minor oil discovery and an oil appraisal.

Testing

No drill stem test was performed.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
290.00	2000.00

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	1701.0	1701.9	[m]
2	1706.0	1708.7	[m]
3	1709.0	1761.8	[m]
4	1762.0	1816.0	[m]
5	1882.0	1883.9	[m]

Total core sample length [m]	112.2
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
MDT		1858.00	0.00	OIL		YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
161	NORDLAND GP
819	UTSIRA FM
1057	HORDALAND GP
1079	SKADE FM
1091	NO FORMAL NAME
1243	GRID FM
1325	NO FORMAL NAME
1620	ROGALAND GP
1620	BALDER FM



1641	SELE FM
1655	LISTA FM
1707	VÅLE FM
1708	SHETLAND GP
1708	EKOFISK FM
1710	TOR FM
1802	HOD FM
1859	CROMER KNOLL GP
1859	RØDBY FM
1877	SOLA FM
1879	BASEMENT

Composite logs

Document name	Document format	Document size [MB]
5625	pdf	0.39

Geochemical information

Document name	Document format	Document size [MB]
5625_1	pdf	0.85
5625_2	pdf	6.67

Logs

Log type	Log top depth [m]	Log bottom depth [m]
FMI MSIP ECRD ACTS	1500	2000
MDT PA ACTS ECRD	1709	1956
MDT PA ACTS ECRD	1710	1956
MDT PA ACTS ECRD	1895	1911
MDT PA ACTS ECRD	1895	1930
MWD - DIR	161	288
MWD - GR RES DIR	288	2000
PEX HRLA ACTS ECRD	1560	2000
PEX MSIP PPC1	631	1905
ZOVSP	181	2000



**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	281.0	36	288.0	1.15	LOT
SURF.COND.	13 3/8	631.0	17 1/2	640.0	1.45	LOT
INTERM.	9 5/8	1689.0	12 1/4	1690.0	1.80	LOT
OPEN HOLE		2000.0	8 1/2	2000.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
288	1.03			SEAWATER	
431	1.08	9.0		SPUD MUD	
640	1.10	10.0		SPUD MUD	
1020	1.30	23.0		KCL/POLYMER/GLY COL	
1200	1.35	30.0		KCL/POLYMER/GLY COL	
1706	1.20	22.0		KCL/POLYMER/GLY COL	
1709	1.20	18.0		KCL/POLYMER	
1709	1.20	23.0		KCL/POLYMER/GLY COL	

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]
5625 Formation pressure (Formasjonstrykk)	pdf	0.19

