General information

Wellbore name	16/7-10
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	16/7-10
Well name	16/7-10
Seismic location	inline 4200/xline 4214
Production licence	569
Drilling operator	Statoil Petroleum AS
Drill permit	1359-L
Drilling facility	OCEAN VANGUARD
Drilling days	67
Entered date	09.07.2011
Completed date	13.09.2011
Release date	13.09.2013
Publication date	13.09.2013
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	YES
1st level with HC, age	EARLY PALEOCENE
1st level with HC, formation	TY FM
Kelly bushing elevation [m]	22.0
Water depth [m]	85.0
Total depth (MD) [m RKB]	2514.0
Final vertical depth (TVD) [m RKB]	2513.0
Maximum inclination [°]	6.4
Oldest penetrated age	LATE CRETACEOUS
Oldest penetrated formation	TOR FM
Geodetic datum	ED50
NS degrees	58° 29' 56.56'' N
EW degrees	2° 1' 31.42'' E
NS UTM [m]	6484832.90
EW UTM [m]	443193.93
UTM zone	31
NPDID wellbore	6607

Wellbore history

General

Well 16/7-10 was drilled on the Theta Prospect in the South Viking Graben in the North Sea, close to the Sleipner field. The prospect was seen as a possible extension of the 16/7-2 discovery in the Ty Formation. The main target was Ty Formation turbidite sands.

Operations and results

The semi-submersible installation Ocean Vanguard drilled this well. A 8 1/2" pilot hole 16/7-U-1 was drilled to 610.5 m prior to the main well due to shallow gas warning. At this depth a substantial amount of shallow gas was detected with the ROV sonar. The pilot hole was plugged back. Wildcat well 16/7-10 was spudded on 9 July 2011, 16 m away from the pilot hole. After intermediate wire line logging in the 12 1/4" section, it was not possible to get the 9 5/8" liner to section TD. A technical side-track (16/7-10 T2) was performed from the 16/7-10 well, with a kick-off point at 1916 m, and drilled to final TD at 2514 m in the Late Cretaceous Tor Formation. The well was drilled with sea water and sweeps down to 503 m, with Performadril mud from 503 m to 1151 m, and with XP-07 #14 oil based mud from 1151 m to TD.

Rocks of Quaternary, Tertiary and Cretaceous age were penetrated. The Ty Formation was encountered with Good reservoir sand at 2348.5 m (2347.5 m TVD), 35.5 m deeper than prognosed. Results of the Theta NE well showed a considerably reduced hydrocarbon column relative to prognosis (2 m gross HC bearing interval vs. 36 m expected). The GWC was found to be at 2349 m (2328 m TVD MSL), the same as encountered at 16/7-2, supporting pressure communication between the two wells. Reservoir parameters were also similar, with Ty Formation 115 m gross reservoir interval, 88 % Net to Gross and 27 % porosity. Hydrocarbon saturation was estimated to 51 %. No oil shows were reported from the well. The use of oil based mud obscured visible shows analysis below 1151 m

No conventional cores were cut in the well. MDT wire line fluid samples were taken in the Ty Formation at 2348.6 m (2347.6 m TVD; gas/condensate with ca 3% hydrocarbon contamination from mud) and 2383.0 m (2382 m TVD; water).

The well was permanently abandoned on 13 September 2011 as a minor gas discovery.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
510.00	2270.00

Cuttings available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1160.0	[m]	DC	FUGRO
1180.0	[m]	DC	FUGRO
1200.0	[m]	DC	FUGRO
1220.0	[m]	DC	FUGRO
1240.0	[m]	DC	FUGRO
1260.0	[m]	DC	FUGRO
1280.0	[m]	DC	FUGRO
1300.0	[m]	DC	FUGRO
1330.0	[m]	DC	FUGRO
1340.0	[m]	DC	FUGRO
1370.0	[m]	DC	FUGRO
1390.0	[m]	DC	FUGRO
1400.0	[m]	DC	FUGRO
1420.0	[m]	DC	FUGRO
1440.0	[m]	DC	FUGRO
1460.0	[m]	DC	FUGRO
1480.0	[m]	DC	FUGRO
1500.0	[m]	DC	FUGRO
1520.0	[m]	DC	FUGRO
1540.0	[m]	DC	FUGRO
1560.0	[m]	DC	FUGRO
1580.0	[m]	DC	FUGRO
1600.0	[m]	DC	FUGRO
1620.0	[m]	DC	FUGRO
1640.0	[m]	DC	FUGRO
1660.0	[m]	DC	FUGRO
1680.0	[m]	DC	FUGRO
1700.0	[m]	DC	FUGRO
1720.0	[m]	DC	FUGRO
1740.0	[m]	DC	FUGRO
1760.0	[m]	DC	FUGRO
1790.0	[m]	DC	FUGRO
1800.0	[m]	DC	FUGRO
1820.0	[m]	DC	FUGRO
1840.0	[m]	DC	FUGRO

1860.0	[m]	DC	FUGRO
1880.0	[m]	DC	FUGRO
1900.0	[m]	DC	FUGRO
1920.0	[m]	DC	FUGRO
1940.0	[m]	DC	FUGRO
1960.0	[m]	DC	FUGRO
1980.0	[m]	DC	FUGRO
2000.0	[m]	DC	FUGRO
2020.0	[m]	DC	FUGRO
2040.0	[m]	DC	FUGRO
2060.0	[m]	DC	FUGRO
2080.0	[m]	DC	FUGRO
2100.0	[m]	DC	FUGRO
2120.0	[m]	DC	FUGRO
2140.0	[m]	DC	FUGRO
2160.0	[m]	DC	FUGRO
2180.0	[m]	DC	FUGRO
2200.0	[m]	DC	FUGRO
2220.0	[m]	DC	FUGRO
2240.0	[m]	DC	FUGRO
2270.0	[m]	DC	FUGRO
2280.0	[m]	DC	FUGRO
2283.0	[m]	DC	FUGRO
2289.0	[m]	DC	FUGRO
2295.0	[m]	DC	FUGRO
2301.0	[m]	DC	FUGRO
2307.0	[m]	DC	FUGRO
2313.0	[m]	DC	FUGRO
2319.0	[m]	DC	FUGRO
2325.0	[m]	DC	FUGRO
2331.0	[m]	DC	FUGRO
2337.0	[m]	DC	FUGRO
2343.0	[m]	DC	FUGRO
2349.0	[m]	DC	FUGRO
2355.0	[m]	DC	FUGRO
2361.0	[m]	DC	FUGRO
2367.0	[m]	DC	FUGRO
2373.0	[m]	DC	FUGRO
2379.0	[m]	DC	FUGRO
2385.0	[m]	DC	FUGRO

2391.0	[m]	DC	FUGRO
2397.0	[m]	DC	FUGRO
2403.0	[m]	DC	FUGRO
2406.0	[m]	DC	FUGRO
2412.0	[m]	DC	FUGRO
2418.0	[m]	DC	FUGRO
2424.0	[m]	DC	FUGRO
2430.0	[m]	DC	FUGRO
2436.0	[m]	DC	FUGRO
2442.0	[m]	DC	FUGRO
2448.0	[m]	DC	FUGRO
2454.0	[m]	DC	FUGRO
2460.0	[m]	DC	FUGRO
2466.0	[m]	DC	FUGRO
2484.0	[m]	DC	FUGRO
2490.0	[m]	DC	FUGRO
2496.0	[m]	DC	FUGRO
2502.0	[m]	DC	FUGRO
2508.0	[m]	DC	FUGRO
2515.0	[m]	DC	FUGRO

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		2348.70	0.00	CONDENSATE	09.02.2011 - 00:00	NO

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
107	NORDLAND GP
793	UTSIRA FM
1107	HORDALAND GP
1398	SKADE FM
1414	NO FORMAL NAME
1951	GRID FM
2002	NO FORMAL NAME

2172	ROGALAND GP
2172	BALDER FM
2217	SELE FM
2264	LISTA FM
2335	VÅLE FM
2349	TY FM
2467	SHETLAND GP
2467	EKOFISK FM
2500	TOR FM

Logs

Log type	Log top depth [m]	Log bottom depth [m]
GPIT MSIP PEX	503	1160
GPIT MSIP PEX GR	1030	2265
GPIT MSIP PEX GR	2140	2513
MDT	2347	2347
MDT	2490	2490
MDT TLC	2348	2383
MWD LWD - ARC ECOS SON TELES	107	610
MWD LWD - ARCVRES6 TELE	1944	2283
MWD LWD - ARCVRS9 TELES	503	2278
MWD LWD - IMPVRES4 VPWD4	2283	2514
PEX GR	1117	2185
USIT	2000	2280
VSP	1956	2350
VSP GR	520	2183

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	172.0	36	172.0	0.00	LOT
SURF.COND.	20	497.0	26	503.0	1.46	LOT
PILOT HOLE		610.0	8 1/2	610.0	0.00	LOT
INTERM.	13 3/8	1151.0	17 1/2	1151.0	1.76	LOT
INTERM.	9 5/8	1905.0	12 1/4	2265.0	0.00	LOT
LINER	7	2282.0	8 1/2	2282.0	1.35	LOT

OPEN HOLE		2514.0	6	2514.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
150	1.03	15.0		Spud Mud	
347	1.33	19.0		Spud Mud	
487	1.31	20.0		Spud Mud	
503	1.24	12.0		Performadril	
1160	1.30	28.0		Performadril	
1180	1.18	19.0		XP-07 - #14	
1906	1.45	32.0		XP-07 - #14	
1944	1.45	23.0		XP-07 - #14	
2072	1.31	16.0		Spud Mud	
2072	1.30	15.0		Spud Mud	
2278	1.35	19.0		XP-07 - #14	
2278	1.35	21.0		XP-07 - #14	
2283	1.47	25.0		XP-07 - #14	
2514	1.24	17.0		XP-07 - #14	
2514	1.20	16.0		XP-07 - #14	