General information

Wellbore name	34/4-11
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	34/4-11 (Beta)
Well name	34/4-11
Seismic location	PCR06M1 -crossline 1881 & innline 1917
Production licence	375
Drilling operator	Petro-Canada Norge AS
Drill permit	1278-L
Drilling facility	SONGA DELTA
Drilling days	90
Entered date	13.10.2009
Completed date	10.01.2010
Release date	10.01.2012
Publication date	10.01.2012
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	BRENT GP
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	STATFJORD GP
Kelly bushing elevation [m]	29.0
Water depth [m]	375.0
Total depth (MD) [m RKB]	4327.0
Final vertical depth (TVD) [m RKB]	4326.0
Maximum inclination [°]	4.5
Bottom hole temperature [°C]	144
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	LUNDE FM
Geodetic datum	ED50
NS degrees	61° 38' 41'' N
EW degrees	2° 5' 53.74'' E

NS UTM [m]	6835097.24
EW UTM [m]	452218.98
UTM zone	31
NPDID wellbore	6227

Wellbore history

General

Well 34/4-11 was drilled north of the Snorre Field and ca two km northwest of the 34/4-10 R Brent oil discovery in the Marulk Basin in the Northern North Sea. The primary objective was to drill and evaluate the Beta central fault terrace to the northwest of 34/4-10 R. The Beta central fault terrace is situated on the same general structure as in 34/4-10 R, but on a different fault block. Secondary objectives were to evaluate the petroleum potential in the Early Jurassic Dunlin Group and Statfjord Formation.

Operations and results

Wildcat well 34/4-11 was spudded with the semi-submersible installation Songa Delta on 13 October 2009 and drilled to TD at 4327 m in Late Triassic sediments of the Lunde Formation. No significant problems were encountered in the operations. The well was drilled with seawater and hi-vis pills down to 1340 m, with Aqua-Drill mud containing 3.5 - 4.0 % glycol from 1340 m to 2293 m, and with Carbo-Sea oil based mud from 2293 m to TD.

A 51 m thick Brent Group (primary target) was encountered at 3969 m (3938.7m TVD MSL), 18.7 m TVD deep to prognosis. The Brent Group was oil-bearing, but reservoir quality was poor with only 7 m net. The poor reservoir properties resulted in no successful RCI pretests. The Dunlin Group was present as a marginal siltstone facies from 4020 to 4131 m. The Statfjord Formation came in at 4131 m (4100.7 m TVD MSL) with sandstones with oil shows and drill gas peaks with a full C1-C5 chromatograph breakdown. The Statfjord Formation was seen to be an interbedded sequence of sandstone, siltstone and claystone. The Statfjord reservoir was oil bearing down-to at least 4215.7 m (4185.3 m TVD MSL). Petrophysical analyses proved 85 m gross and 22.4 m net oil bearing Statfjord reservoir with moderate quality sandstones with average porosity 19% and average water saturation of 0.38. There was a definite water-up-to at 4301.9 m (4271.5m TVD MSL).The RCI tool recorded two separate oil gradients within the Statfjord Formation oil zone with a reservoir pressure of 11291 psia at 4103.3 m TVD MSL. The underlying logged Statfjord water reservoir had very poor quality sandstones. No shows were recorded above Brent Group level.

Two cores were cut 3976 to 4012 m in the Brent Group with 100% recovery. The wire line logging was very successful with full log data acquired, including 9 x PVT, 6 x single phase and 2 x large volume (10 litre) oil samples from two sampling depths in the Statfjord Formation (4200.3 m and 4162.3 m) and 33 rotary side wall cores. The oil sample at 4162 m was analysed to contain 38.2 deg API oil at reservoir pressure of 11291 psia. However the water bearing basal Statfjord section was of too poor quality sandstones and no water sample was obtained.

The well was permanently abandoned on 10 January 2010 as an oil discovery.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1350.00	4325.00

Cuttings available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
404	NORDLAND GP
1272	UTSIRA FM
1289	HORDALAND GP
1763	ROGALAND GP
1763	BALDER FM
1805	SELE FM
1859	LISTA FM
1937	SHETLAND GP
1937	JORSALFARE FM
2235	KYRRE FM
3340	TRYGGVASON FM
3685	SVARTE FM
3819	CROMER KNOLL GP
3819	RØDBY FM
3840	VIKING GP
3840	DRAUPNE FM
3903	HEATHER FM
3969	BRENT GP
4020	DUNLIN GP
4131	STATFJORD GP
4224	HEGRE GP
4224	LUNDE FM

Logs

Log type	Log top depth [m]	Log bottom depth [m]
MREX	3960	4310
MWD - CORE	3976	3985
MWD - DIR	404	487
MWD - GR RES AC BHPR MECH	1340	2293
MWD - GR RES BHPR MECH	404	1340

MWD - GR RES BRES AC BHPR MECH	3830	4327
MWD - GR RES NBG BRES AC BHPR ME	2293	3830
PCOR	3969	4316
PCOR	4133	4235
RCI	4162	4215
RCI PRESS	3969	4316
VSP	1937	4310
WGI HDIL XMAC ZDL CN DSL	3700	4325

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	483.0	36	487.0	0.00	LOT
SURF.COND.	20	1336.0	26	1340.0	1.80	LOT
INTERM.	13 3/8	2286.0	17 1/2	2293.0	1.86	LOT
INTERM.	9 5/8	3825.0	12 1/4	3830.0	2.14	LOT
OPEN HOLE		4327.0	8 1/2	4327.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
433	1.05			SEA WATER	
483	1.05			SPUD MUD	
1420	1.54	23.0		AQUACOL KCL/POLYMER/GLYCOL	
1580	1.65	32.0		CARBO TECH	
2293	1.55	27.0		AQUACOL KCL/POLYMER/GLYCOL	
3120	1.62	39.0		CARBO TECH	
3830	1.66	59.0		CARBO TECH	
3900	2.00	57.0		CARBO TECH	
4012	1.93	50.0		CARBO TECH	
4120	2.00	57.0		CARBO TECH	
4325	1.93	48.0		CARBO TECH	
4327	2.00	53.0		CARBO TECH	

4327	1.93	49.0		CARBO TECH	