

**General information**

Wellbore name	16/1-25 S
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Discovery	16/1-12 Trolldhaugen
Well name	16/1-25
Seismic location	
Production licence	338 C
Drilling operator	Lundin Norway AS
Drill permit	1596-L
Drilling facility	BREDFORD DOLPHIN
Drilling days	73
Entered date	15.10.2015
Completed date	26.12.2015
Release date	26.12.2017
Publication date	04.01.2016
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	106.0
Total depth (MD) [m RKB]	2210.0
Final vertical depth (TVD) [m RKB]	2121.0
Geodetic datum	ED50
NS degrees	58° 46' 57.1" N
EW degrees	2° 15' 17.46" E
NS UTM [m]	6516226.12
EW UTM [m]	456918.19
UTM zone	31
NPDID wellbore	7775

**Wellbore history****General**

Well 16/1-25 S was drilled on the Utsira High in the North Sea, 2.7 km south of well 16/1-12 (Rolvsnæs discovery well). The primary objective was to prove the presence of transgressive Cretaceous and/or Jurassic sandstones overlying the basement and to test the extension of the 16/1-12 discovery in porous basement towards south.

Operations and results

Wildcat well 16/1-25 S was spudded with the semi-submersible installation Bredford Dolphin on 15 October 2015 and drilled to TD at 2210 m (2121 m TVD) m in the basement rock. The section from 2010 to 602 m was drilled first as a 97/8" pilot hole to check for shallow gas and then opened up with a 26" bit. No shallow gas was observed. The well was drilled as a deviated well (15° through basement) in order to cross more faults and test a wider area and in that way to get better control on variability, quality and thickness of the weathered zones. Operations proceeded without significant problems. The well was drilled with seawater and hi-vis sweeps down to 602 m and with Aquadril mud from 602 m to TD.

A 10 m transgressive sandstone was prognosed at the base of the Early Cretaceous Åsgard Formation but only 10 cm was observed directly above basement. The top basement was found at 2004.25 m (1922.7 m TVD). The well encountered an oil column of about 30 m in porous and fractured basement rock. The OWC is set 2034.5 m MD RKB (1952 m TVD). The pressure data shows communication with the 16/1-12 oil discovery, with approximately the same oil/water contact. The fluid type is oil with similar properties to the Edvard Grieg oil. Below OWC there was oil shows (direct, cut and residual fluorescence) down to 2067 m, and weaker shows down to 2124 m. There were no shows below this depth or above top Basement.

Six Cores were cut in succession in the basement from 2002 to 2025.23 m with a total recovery of 97%. The core-log shift varies between 0.07 and 0.342 m. MDT fluid samples were taken at 2012.25 m (oil), 2032.5 m (oil), and 2059.6 m (water). PVT single flash analyses of the samples from 2012.25 m gave GOR in the range 175 to 197 Sm³/Sm³ and oil density in the range 0.847 to 0.849 g/cm³. The samples from 2032.5 m had GOR in the range 168 to 177 Sm³/Sm³ and oil density in the range 0.851 to 0.852 g/cm³.

The well was permanently abandoned on 26 December 2015 as an oil appraisal.

Testing

One production test (DST) was performed in the oil zone from 2006.83 to 2029.26 m. The test produced 47 Sm³ oil and 13300 Sm³ gas per day through a 32/64" choke. The GOR was 280 Sm³/Sm³. The DST temperature measured at 2019.9 m (1937.8 m TVD) was 77.4°C.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
610.00	2209.00

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	2002.0	2006.0	[m]
2	2006.0	2007.6	[m]
3	2008.0	2010.8	[m]
4	2010.8	2013.3	[m]
5	2013.4	2018.6	[m]
6	2018.8	2025.2	[m]

Total core sample length [m]	22.5
Cores available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
131	NORDLAND GP
734	UTSIRA FM
1006	HORDALAND GP
1014	SKADE FM
1704	GRID FM
1788	ROGALAND GP
1788	BALDER FM
1795	SELE FM
1820	LISTA FM
1910	VÅLE FM
1917	SHETLAND GP
1917	EKOFISK FM
1934	TOR FM
1981	HOD FM
1999	CROMER KNOLL GP
1999	SOLA FM
2000	ÅSGARD FM
2004	BASEMENT

Drill stem tests (DST)



Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2007	2029	14.3

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	47	13300			280

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CMR MRF ADT XPT GR JARS	2010	2200
FMI PPC MSIP GR JARS	1922	2210
MDT PS HY PO SRP PQ IFA MS GR JA	2012	2100
MFI GR	1922	2210
MWD LWD - DIR ECD GR	130	602
MWD LWD - DIR ECD GR RES SON	182	600
MWD LWD - RES GR ECD	1888	2000
MWD LWD - RES GR ECD DEN NEU SON	559	2210
UIB HRLA PEX ECS HNGS	1922	2205
VSI32 GR	610	2189
XL ROCK	2026	2039
XL ROCK	2045	2171

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	210.0	36	210.0	0.00	
SURF.COND.	20	596.0	26	602.0	1.55	FIT
PILOT HOLE		602.0	9 7/8	662.0	0.00	
INTERM.	9 5/8	1922.4	12 1/4	1930.0	1.96	LOT



LINER	7	2208.0	8 1/2	2210.0	0.00	
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Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
131	1.40	20.0		Spud Mud	
210	1.04	10.0		Spud Mud	
210	1.40	10.0		Spud Mud	
385	1.40	16.0		Water Based	
398	1.04	10.0		Spud Mud	
602	1.03	10.0		Spud Mud	
602	1.35	19.0		Water Based	
602	1.40	15.0		Spud Mud	
1297	1.39	16.0		Water Based	
1568	1.40	23.0		Water Based	
1568	1.20	10.0		Water Based	
1591	1.40	20.0		Water Based	
1962	1.20	18.0		Water Based	
2210	1.20	2.0		Brine	
2210	1.20	16.0		Water Based	