General information

Wellbore name	16/2-11 A
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Field	JOHAN SVERDRUP
Discovery	16/2-6 Johan Sverdrup
Well name	16/2-11
Seismic location	LN0902:inline4414 & crossline 3363
Production licence	501
Drilling operator	Lundin Norway AS
Drill permit	1401-L
Drilling facility	BREDFORD DOLPHIN
Drilling days	37
Entered date	29.03.2012
Completed date	04.05.2012
Release date	04.05.2014
Publication date	04.05.2014
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	INTRA DRAUPNE FM SS
Kelly bushing elevation [m]	25.0
Water depth [m]	113.0
Total depth (MD) [m RKB]	2365.0
Final vertical depth (TVD) [m RKB]	2072.0
Maximum inclination [°]	45.4
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SKAGERRAK FM
Geodetic datum	ED50
NS degrees	58° 48' 13.06'' N
EW degrees	2° 34' 19.92'' E
NS UTM [m]	6518414.99
EW UTM [m]	475280.98

UTM zone	31
NPDID wellbore	6849

Wellbore history

General

Well 16/2-11 A is a sidetrack to well 16/2-11. It was drilled to appraise the western part of the Johan Sverdrup (formerly Avaldsnes) discovery on the Utsira High in the North Sea. The primary objectives of 16/2-11 A was to verify the system pressure and oil-water contact in the 16/2-11 area and to get a representative water sample from the central part of the Johan Sverdrup field. The well would also give information about variations in lateral thickness and facies in the Johan Sverdrup Field for better understanding of geology and field drainage strategy.

Operations and results

Appraisal well 16/2-11 A was kicked off from 770 m in the main well bore on 29 March 2012. It was drilled with the semi-submersible installation Bredford Dolphin to TD at 2365 m (2073 m TVD) in the Triassic Skagerrak Formation. The sidetrack deviation was up to 45 degrees and it penetrated BCU ca 950 m to the north-east of the main well location. No significant problem was encountered in the operations. The well was drilled with Performadril Water Based Mud from kick-off to TD.

The well penetrated a 4 m thick Draupne Formation from 2180 m to 2184 m. The Draupne Formation consisted of decimetre scale Spiculites and fine grained sandstones interbedded with centimetre scale laminated mudstones typical of the Draupne shales. It was dated Late Volgian to Late Ryazanian. Top Intra-Draupne Formation Sandstone was penetrated at 2184 m (1915 m TVD). The Vestland Group was encountered at 2206 m (1934 m TVD) with a section of claystone and silstone on top down to 2215 m (1942 m TVD) and heterolithic sandstone from there down to top Skagerrak Formation at 2239 m (1963 m TVD). The oil water contact was established at 2221 m (1947 m TVD). This is in line with other wells in the License. The well also confirmed the good reservoir properties encountered in the well 16/2-11. Minor oil shows were reported in one sample of tuff from the Balder Formation at 1600 m, otherwise oil shows were restricted to the Middle to Late Jurassic reservoir section.

Five cores were cut from 2169 m to 2243 m with 98-100% recovery in all cores. The cores covered the entire section from base Åsgard Formation, across the BCU, through the Late to Middle Jurassic reservoir, and into the upper Skagerrak Formation. MDT fluid samples were taken at 2186.1 m (oil), 2202 m (oil), 2223.5 m (oil), 2225.1 m (water), and 2233.4 m (water).

The well was permanently abandoned on 4 May 2012 as an oil appraisal well.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
820.00	2365.00

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	2169.0	2169.2	[m]
2	2169.2	2196.6	[m]
3	2196.6	2206.4	[m]
4	2206.6	2221.3	[m]
5	2221.6	2242.8	[m]

Total core sample length [m]	73.3
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		2186.10	0.00	OIL	27.04.2012 - 00:00	NO
MDT		0.00	2202.00	OIL	27.04.2012 - 00:00	NO
MDT		0.00	2223.00	OIL	27.04.2012 - 00:00	NO

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
138	NORDLAND GP
797	UTSIRA FM
951	HORDALAND GP
951	SKADE FM
1582	ROGALAND GP

1582	BALDER FM
1610	SELE FM
1627	LISTA FM
1745	VÅLE FM
1752	SHETLAND GP
1752	EKOFISK FM
1809	TOR FM
1885	HOD FM
1990	BLODØKS FM
2011	SVARTE FM
2050	CROMER KNOLL GP
2050	RØDBY FM
2150	SOLA FM
2162	ÅSGARD FM
2181	VIKING GP
2181	DRAUPNE FM
2185	INTRA DRAUPNE FM SS
2206	VESTLAND GP
2239	HEGRE GP
2239	SKAGERRAK FM

Logs

Log type	Log top depth [m]	Log bottom depth [m]
FMI MSIP GR	2099	2365
HRLA PEX ECS HNGS	2099	2343
MDT GR	2186	2241
MDT GR	2233	2233
MDT GR	2233	2233
MRX XPT GR	2181	2302
MRX XPT GR	2185	2188
MWD - TELE ARC SON ADN	744	2092
MWD - TELE SON ECO GVR	2096	2360

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
INTERM.	9 5/8	2097.0	12 1/4	2103.0	1.78	LOT

OPEN HOLE		2365.0	8 1/2	2365.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
690	1.37	19.0		Water Base	
2103	0.00	41.0		Water Base	
2365	0.00	37.0		Water Base	

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]
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