

**General information**

Wellbore name	16/5-2 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
Field	JOHAN SVERDRUP
Discovery	16/2-6 Johan Sverdrup
Well name	16/5-2
Seismic location	LN0902-R10-inline4980 & crossline 3210
Production licence	501
Drilling operator	Lundin Norway AS
Drill permit	1376-L
Drilling facility	BREDFORD DOLPHIN
Drilling days	62
Entered date	28.11.2011
Completed date	28.01.2012
Release date	28.01.2014
Publication date	28.01.2014
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL SHOWS
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	111.0
Total depth (MD) [m RKB]	2042.0
Final vertical depth (TVD) [m RKB]	2037.2
Maximum inclination [°]	9.8
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	SKAGERRAK FM
Geodetic datum	ED50
NS degrees	58° 44' 43.55" N
EW degrees	2° 37' 58.2" E
NS UTM [m]	6511913.92
EW UTM [m]	478748.94
UTM zone	31
NPDID wellbore	6720



Wellbore history

General

Well 16/5-2 S was drilled to appraise the southern flank of the Avaldsnes (subsequently Johan Sverdrup) discovery on the Utsira High in the North Sea. The objectives were to prove the presence and quality of Late and Middle Jurassic

sequences on the south flank of the Johan Sverdrup structure; to prove an oil column of 20 to 45 m; and to calibrate the seismic interpretation and the depth conversion. The well was planned to reach total depth in sediments of Triassic age at a depth of approximately 2180 m TVD RKB.

Operations and results

Appraisal well 16/5-2 S was spudded with the semi-submersible installation Bredford Dolphin on 28 November 2011 and drilled to TD at 2042 m (2037 m TVD) in the Late Triassic Skagerrak Formation. The well was drilled with Sea water and hi-vis pills down to 755 m and with Performadril Water Based Mud from 755 m to TD.

At 1958 m the well encountered a 9 m thick sequence of Late Jurassic Draupne Formation sandstone of excellent quality. No Middle Jurassic sediments were found. The seismic interpretation of Base Jurassic was encountered shallower than expected while the BCU was deeper than expected. This meant that the Late Jurassic Intra-Draupne Formation sandstone was penetrated below the regional free water level seen in neighbouring wells in the Johan Sverdrup Discovery. A water gradient of 1.022 g/cc was confirmed in the reservoir interval. Residual hydrocarbon shows were observed in some intervals in the conventional cores from 1959 m to 1967 m, otherwise no shows were reported from the well.

Five cores were cut from 1919 m to 1974 m with good recovery. A fluid sample was acquired using the MDT tool at 1958.95 m. This contained only water without hydrocarbon traces.

The well was permanently abandoned on 28 January 2012 as a dry well with shows.

Testing

No drill stem test was performed.

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Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
760.00	2042.00

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	1919.0	1937.7	[m]
2	1938.0	1958.2	[m]
3	1958.2	1967.3	[m]
4	1967.5	1968.1	[m]
5	1968.3	1974.2	[m]

Total core sample length [m]	54.4
Cores available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
136	NORDLAND GP
793	UTSIRA FM
967	HORDALAND GP
1396	ROGALAND GP
1396	BALDER FM
1412	SELE FM
1422	LISTA FM
1479	SHETLAND GP
1479	EKOFISK FM
1487	TOR FM
1616	HOD FM
1769	BLODØKS FM
1785	SVARTE FM
1816	CROMER KNOLL GP
1816	RØDBY FM
1923	SOLA FM
1926	ÅSGARD FM
1958	VIKING GP
1958	INTRA DRAUPNE FM SS
1967	HEGRE GP
1967	SKAGERRAK FM

Logs



Log type	Log top depth [m]	Log bottom depth [m]
FMI MSIP GR	1759	2040
MDT GR	1959	2014
MRX GR	1859	2027
MSCT GR	1783	2034
MSIP IN DCBL	1519	2045
MWD - DIR GR RES PWD SON	136	754
MWD - DIR GR RES PWD SON DEN NEU	748	2042
PEX HRLA ECD GR	1536	2042
VSI GR	716	2032

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	214.0	36	216.0	0.00	LOT
SURF.COND.	13 3/8	748.0	17 1/2	755.0	1.89	LOT
INTERM.	9 5/8	1546.0	12 1/4	2556.0	1.50	LOT
OPEN HOLE		2042.0	8 1/2	2042.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
758	1.30	27.0		Water Base	
1435	1.35	33.0		Water Base	
1556	1.35	32.0		Water Base	
1919	1.20	32.0		Water Base	
1967	1.21	26.0		Water Base	
2042	1.35	26.0		Water Base	
2042	1.20	21.0		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]
6720 Formation pressure (Formasjonstrykk)	pdf	0.22

