

**General information**

Wellbore name	16/3-4 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	16/3-4
Seismic location	LN0902 xline2440 & crossline 7708
Production licence	501
Drilling operator	Lundin Norway AS
Drill permit	1365-L
Drilling facility	BREDFORD DOLPHIN
Drilling days	21
Entered date	28.06.2011
Completed date	18.07.2011
Release date	18.07.2013
Publication date	18.07.2013
Purpose - planned	WILDCAT
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]	117.0
Total depth (MD) [m RKB]	2128.0
Final vertical depth (TVD) [m RKB]	1958.6
Maximum inclination [°]	32.9
Oldest penetrated age	PRE-DEVONIAN
Oldest penetrated formation	BASEMENT
Geodetic datum	ED50
NS degrees	58° 48' 11.36" N
EW degrees	2° 43' 8.3" E
NS UTM [m]	6518317.53
EW UTM [m]	483761.47



UTM zone	31
NPDID wellbore	6629

Wellbore history

General

Well 16/3-4 A is a sidetrack to well 16/3-4, which was drilled to prove the extension of the Avaldsnes Discovery to the north-east of the structural crest of the Avaldsnes structure. Well 16/3-4 proved oil in a 14 m thick Intra-Draupne Formation sandstone overlying weathered basement rock. The oil was proven to be in pressure communication with the 16/2-6 Avaldsnes discovery well. The 16/3-4 A sidetrack was drilled up-flanks (south-south-west) of the main well bore. The objective was to further appraise the Avaldsnes oil discovery and to determine the extent, thickness, and quality of the reservoir in this part of the structure.

Operations and results

Well 16/3-4 A was kicked off from 790 m in the primary well on 28 June 2011. It was drilled with the semi-submersible installation Bredford Dolphin to TD at 2128 m (1959 m TVD) in granitic basement. No significant problem was encountered in the operations. The well was drilled with Performadril mud from kick-off to TD.

The geological sidetrack 16/3-4 A encountered top Draupne Formation shales at 2065.5 m (1906.3 m TVD). At 2076.5 m (1915.6 m TVD) a 5 m vertical thickness of Intra-Draupne Formation sandstone was penetrated. The Draupne sandstone was oil bearing down to fractured basement at 2081.6 m (1919.8 m). Slightly different fluid gradients were recorded compared to the main wellbore, however, PVT analysis of the samples showed identical oil to be present in both wellbores. No oil water contact was established. The first oil shows in the sidetrack were observed in the marls of the Åsgard Formation in a sidewall core at 2052.8 m. More extensive oil shows were seen in the underlying Draupne sandstones. The oil shows became weaker in the fractured basement that was recovered in the core. Oil shows were seen in cuttings and sidewall cores below the core down to 2115.5 m; the last observed oil shows.

One core was cut from 2067 m to 2082.5 m in the Draupne Formation shales and reservoir sandstone, and into the basement. MDT oil samples were taken at 2079.2 m.

The well was permanently abandoned on 18 July 2011 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]
800.00	2128.00

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	2067.0	2082.3	[m]

Total core sample length [m]	15.3
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		2079.20	0.00	OIL	12.07.2011 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
142	NORDLAND GP
801	UTSIRA FM
877	NO FORMAL NAME
934	HORDALAND GP
948	SKADE FM
1010	NO FORMAL NAME
1388	NO FORMAL NAME
1416	ROGALAND GP
1416	BALDER FM
1453	SELE FM
1466	LISTA FM
1553	VÅLE FM
1570	SHETLAND GP



1570	EKOFISK FM
1599	TOR FM
1675	HOD FM
1812	TRYGGVASON FM
1824	BLODØKS FM
1865	SVARTE FM
1915	CROMER KNOLL GP
1915	RØDBY FM
2008	SOLA FM
2034	ÅSGARD FM
2066	VIKING GP
2066	DRAUPNE FM
2077	INTRA DRAUPNE FM SS
2082	BASEMENT

Geochemical information

Document name	Document format	Document size [MB]
6629 01 16 3 4A gch transfer 1	txt	0.00
6629 01 16 3 4A gch transfer 2	txt	0.00
6629 01 16 3 4A gch transfer 3	txt	0.00
6629 02 16 3 4A gch results 1	txt	0.04
6629 02 16 3 4A gch results 2	txt	0.09
6629 02 16 3 4A gch results 3	txt	0.07

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CMR XPT GR	2012	2123
FMI MSIP GR	1920	2126
MDT GR	2079	2079
MSCT GR	2010	2115
MWD - DIR GR RES PWD	136	757
MWD - DIR GR RES PWD SON DEN NEU	724	2126
PEX HRLA HNGS	1998	2119



**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
PILOT HOLE		760.0	9 7/8	760.0	0.00	LOT
INTERM.	9 5/8	2000.0	12 1/4	2005.0	0.00	LOT
OPEN HOLE		2128.0	8 1/2	2128.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
860	1.35	28.0		Performadrill	
860	1.30	27.0		Polymer Mud	
2004	1.37	58.0		Performadrill	
2121	1.20	29.0		Performadrill	
2128	1.21	34.0		Performadrill	
2128	1.37	27.0		Performadril	
2128	1.20	30.0		Performadrill	

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]
6629 Formation pressure (Formasjonstrykk)	pdf	0.22

