



General information





Wellbore name	6406/12-G-1 H
Type	EXPLORATION
Purpose	WILDCAT
Status	PLUGGED
Press release	link to press release
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Discovery	6406/12-G-1 H (Frisbee)
Well name	6406/12-G-1
Seismic location	
Production licence	586
Drilling operator	Neptune Energy Norge AS
Drill permit	1815-L
Drilling facility	WEST PHOENIX
Drilling days	53
Entered date	02.09.2020
Completed date	24.10.2020
Plugged date	24.10.2020
Release date	24.10.2022
Publication date	24.10.2022
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	MELKE FM
Kelly bushing elevation [m]	38.6
Water depth [m]	322.4
Total depth (MD) [m RKB]	4235.0
Final vertical depth (TVD) [m RKB]	3734.0
Oldest penetrated age	MIDDLE JURASSIC
Oldest penetrated formation	MELKE FM
Geodetic datum	ED50
NS degrees	64° 1' 50.48" N
EW degrees	6° 45' 2.87" E
NS UTM [m]	7102548.56
EW UTM [m]	390119.10
UTM zone	32
NPDID wellbore	9036



Wellbore history

General

Well 6406/12-G-1 H is an extension of an observation well for the 6406/12-3 A (Bue) oil discovery. The well was drilled on the Fenja field on the southern end of the Halten Terrace in the Norwegian Sea. The primary objective of the exploration section was to confirm oil in Rogn Formation sandstones in the north-eastern part of the Fenja Field, and thereby reduce uncertainty in the resource estimates. Secondary objective was to test Intra Melke Formation sandstones.

Operations and results

A 9 7/8" pilot hole designated 6406-12-U-1 was drilled down to 1240 m to check for shallow gas. No shallow gas was detected.

Well 6406/12-G-1 H was spudded with the semi-submersible installation West Phoenix on 3 May 2020 and drilled to TD at 4235 m (3734 m TVD) in Middle Jurassic (Callovia) claystone belonging to the Melke Formation. The well was drilled in 67.7 days vs. the planned 38.4 days with 13 days (19%) WOW and 8.4 days (12.3%) NPT. Main source of WOW was related to running the 20" casing and while running the 13-5/8" casing. NPT was mainly due to losing and fishing of Wireline tool string, as well as reduced crew availability due to Covid-19 outbreak on the rig. The well was drilled with seawater and hi-vis pills down to 1244 m, with RheGuard oil-based mud from 1244 to 2477 m, and with Exploradrill oil-based mud from 2477 to TD.

Well 6406/12-G-1 H did not encounter reservoir rocks in the primary Bue/Rogn Formation target. The well did however encounter moveable hydrocarbons in Intra-Melke Formation sandstones just below a thin Spekk Formation. These sandstones were penetrated from 3861 to 3956 m (3376.6 to 3462.6 m TVD). The best sands were in the upper part with progressively poorer sands and increasing claystone interbeds downwards. Petrophysical analysis indicated pay zones down to 3872 m (3386.6 m TVD). A possible Oil-Down-To (ODT) is indicated at 3955.2m MD (3462.5 m TVD) based on weakening fluorescence in core three. The hydrocarbons in the Intra Melke Formation sandstones were in a different pressure regime compared to both the Pil (intra-Melke Formation sandstones) and the Bue (Rogn Formation) discoveries.

Three cores were cut. Core one was cut from 3868 to 3871.3 m with 51.5% recovery. The core jammed off in what appeared to be a coal bed. Core two was cut from 3871.3 to 3925.9 m with 100% recovery. Core three was cut from 3925.9 to 3962.3 m with 99.4% recovery. MDT oil samples were taken at 3865.8 m (3381.1 m TVD).

The well was permanently abandoned on 24 October 2020 as an oil discovery.

Testing

No drill stem test was performed.

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	3868.0	3869.7	[m]
2	3871.3	3926.1	[m]



3	3926.0	3962.1	[m]
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Total core sample length [m]	92.6
Cores available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
361	HORDALAND GP
361	NO FORMAL NAME
1142	KAI FM
1225	HORDALAND GP
1225	BRYGGE FM
1966	ROGALAND GP
1966	TARE FM
2063	TANG FM
2261	SHETLAND GP
2261	SPRINGAR FM
2360	NISE FM
2545	KVITNOS FM
3250	CROMER KNOLL GP
3250	LANGE FM
3823	LYR FM
3859	VIKING GP
3859	SPEKK FM
3861	MELKE FM

Logs

Log type	Log top depth [m]	Log bottom depth [m]
MDT	3888	3899
MWD LWD - TELE	322	450
MWD LWD - TELE ARCVIS	430	1244
MWD LWD - TELE EC GV ST SV SS PV	2470	4235
MWD LWD - TELE SON ARCVIS	1244	2470
QG MDT	3700	3955

**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	422.8	36	430.0	0.00	
INTERM.	20	1237.3	26	1244.0	1.63	FIT
INTERM.	13 3/8	2470.0	17 1/2	2477.4	1.78	FIT
OPEN HOLE		4235.0	8 1/2	4235.0	0.00	

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
424	1.03			Water	
1244	1.50		9.0	Water	
1700	1.55		14.3	Oil	
2477	1.58		11.4	Oil	
2655	1.60		7.6	Oil	
3868	1.61		7.6	Oil	
4235	1.60		10.0	Oil	