

**General information**

Wellbore name	6506/9-2 S
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Discovery	6506/9-2 S (Fogelberg)
Well name	6506/9-2
Seismic location	seismic survey CE0801M1-inline2791& crossline 2704
Production licence	433
Drilling operator	Centrica Resources (Norge) AS
Drill permit	1298-L
Drilling facility	WEST ALPHA
Drilling days	77
Entered date	11.02.2010
Completed date	28.04.2010
Release date	28.04.2012
Publication date	28.04.2012
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	GARN FM
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	ILE FM
Kelly bushing elevation [m]	18.0
Water depth [m]	281.0
Total depth (MD) [m RKB]	4805.0
Final vertical depth (TVD) [m RKB]	4736.0
Maximum inclination [°]	14.3
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	ÅRE FM
Geodetic datum	ED50
NS degrees	65° 15' 51.04" N
EW degrees	6° 44' 4.36" E



NS UTM [m]	7239978.20
EW UTM [m]	394237.40
UTM zone	32
NPDID wellbore	6332

Wellbore history

General

The well 6506/9-2 S was drilled on the Fogelberg prospect in a rotated fault block located on the Halten terrace north-northwest of the Smørbukk and Åsgard fields. The overall objective for the well was to test the hydrocarbon potential in the Middle/Lower Jurassic sandstones of the Fangst and Båt Groups. The expected hydrocarbon phase was light oil with associated gas similar to the nearby 6506/11-7 Morvin light oil discovery. The planned total depth for the well was 4783 m TVD RKB, fulfilling the license obligation of drilling 50 m into the Åre Formation (Båt Group). The well was defined as a HPHT well.

Operations and results

Wildcat well 6506/9-2 S was spudded with the semi-submersible installation West Alpha on 11 February 2010 and drilled to TD at 4805 m (4736 m TVD) in the Early Jurassic Åre Formation. The well started with a 9 7/8" pilot hole down to 1227 m to check for shallow gas. No shallow gas was encountered. The well was drilled vertical down to 1213 m. From there angle was built up to 13 deg at ca 1600 m and kept at approximately this angle down to ca 3900 m, and then falling off to vertical again from ca 4000 m to TD. The well was drilled without significant operational problems. It was drilled with seawater and sweeps down to 1219 m, with Glydril water based mud from 1219 m to 2126 m, and with Versatherm oil based mud from 2126 m to TD.

No hydrocarbons were encountered in the Lysing or Lange formations. High gas readings were encountered in the Lange Formation at 4022 m (3954 m TVD). This coincided with maximum recorded pore pressure in the well and low mud weight. With the correct mud weight circulated in place, the background gas returned to normal level and the drilling operation resumed. Base Cretaceous Unconformity was encountered at 4138 m (4069 m TVD) with 20 m MD Spekk Formation overlying 174 m MD Melke Formation. The target reservoir was penetrated at 4332 m (4263.5 m TVD) with 107.5 m TVD gross gas/condensate in Garn and Ile collectively and a possible GWC at 4440 m (4372 m TVD). Garn and Ile consisted of slightly tighter reservoir sands than initially anticipated. The results of the MDT pressure measurements showed a gas/condensate gradient, equal to 0.029 bar/m, in the Garn and Ile formations. The Tofte Formation was very tight and no gradient could be established. In the Tilje Formation a water gradient is established at 0.096 bar/m. No clear oil shows above OBM were recorded in the well.

Two conventional cores were cut at 4342 - 4369 m in the Garn Formation and 4416 - 4471 m in the Ile Formation, both with approximately 100% recovery. MDT fluid samples were taken at 4357.98 m in upper Garn Formation (gas/condensate), 4377 m in lower Garn Formation (gas/condensate), 4411.1 m in upper Ile Formation (gas/condensate), 4428 m in lower Ile Formation (gas/condensate), and 4676 m in the Tilje Formation (water).

The well was permanently abandoned on 28 April 2010 as a gas/condensate discovery.

Testing

No drill stem test was performed.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1225.00	4805.50

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	4342.0	4368.7	[m]
2	4416.0	4471.0	[m]

Total core sample length [m]	81.7
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
4212.0	[m]	DC	APT
4221.0	[m]	DC	APT
4230.0	[m]	DC	APT
4239.0	[m]	DC	APT
4248.0	[m]	DC	APT
4266.0	[m]	DC	APT
4275.0	[m]	DC	APT
4284.0	[m]	DC	APT
4293.0	[m]	DC	APT
4302.0	[m]	DC	APT
4311.0	[m]	DC	APT
4320.0	[m]	DC	APT
4329.0	[m]	DC	APT
4338.0	[m]	DC	APT
4371.0	[m]	DC	APT
4380.0	[m]	DC	APT
4389.0	[m]	DC	APT
4398.0	[m]	DC	APT
4407.0	[m]	DC	APT



4416.0 [m]	DC	APT
4473.0 [m]	DC	APT
4482.0 [m]	DC	APT
4491.0 [m]	DC	APT
4500.0 [m]	DC	APT
4509.0 [m]	DC	APT
4518.0 [m]	DC	APT
4527.0 [m]	DC	APT
4536.0 [m]	DC	APT
4545.0 [m]	DC	APT
4554.0 [m]	DC	APT
4563.0 [m]	DC	APT
4581.0 [m]	DC	APT
4590.0 [m]	DC	APT
4599.0 [m]	DC	APT
4608.0 [m]	DC	APT
4617.0 [m]	DC	APT
4626.0 [m]	DC	APT
4635.0 [m]	DC	APT
4644.0 [m]	DC	APT
4653.0 [m]	DC	APT
4662.0 [m]	DC	APT
4671.0 [m]	DC	APT
4680.0 [m]	DC	APT
4689.0 [m]	DC	APT
4698.0 [m]	DC	APT
4707.0 [m]	DC	APT
4716.0 [m]	DC	APT
4725.0 [m]	DC	APT
4734.0 [m]	DC	APT
4743.0 [m]	DC	APT
4752.0 [m]	DC	APT
4761.0 [m]	DC	APT
4770.0 [m]	DC	APT
4779.0 [m]	DC	APT
4788.0 [m]	DC	APT
4797.0 [m]	DC	APT
4805.0 [m]	DC	APT

**Lithostratigraphy**

Top depth [mMD RKB]	Lithostrat. unit
299	NORDLAND GP
299	NAUST FM
1455	KAI FM
1885	HORDALAND GP
1885	BRYGGE FM
2040	ROGALAND GP
2040	TARE FM
2143	TANG FM
2170	SHETLAND GP
2170	SPRINGAR FM
2404	NISE FM
2610	KVITNOS FM
3176	CROMER KNOLL GP
3176	LYSING FM
3212	LANGE FM
4120	LYR FM
4138	VIKING GP
4138	SPEKK FM
4158	MELKE FM
4332	FANGST GP
4332	GARN FM
4392	NOT FM
4397	ILE FM
4471	BÅT GP
4471	ROR FM
4505	TOFTE FM
4572	ROR FM
4578	TILJE FM
4699	ÅRE FM

Geochemical information

Document name	Document format	Document size [MB]
6332_01_6506_9_2S_gch_transfer_1	txt	0.00
6332_02_6506_9_2S_gch_results_1	txt	0.06



**Logs**

Log type	Log top depth [m]	Log bottom depth [m]
AIT GPI PPC DSI GR	4196	4997
LDS APS HNGS	4196	4799
LWD - DJ	299	1219
LWD - GEOVIS ECOS SONVIS	4369	4805
LWD - GR RES PWD DJ SON DENS NEU	2126	4202
LWD - GR RES PWD DJ SONIC	299	1227
LWD - GR RES PWD DJ SONIC	1227	2126
LWD - GV STETH ECHO SONVIS	4202	4342
MDT	4333	4594
MDT	4334	4463
MDT	4375	4377
MDT	4676	4358
MSCT	4345	4386
VSI	1345	2445
VSI	2196	4795
XPT	4333	4338

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	390.0	36	396.0	0.00	LOT
SURF.COND.	20	1213.0	26	1219.0	1.71	LOT
INTERM.	13 3/8	2111.0	17 1/2	2126.0	1.90	LOT
INTERM.	9 5/8	4197.0	12 1/4	4202.0	2.10	LOT
OPEN HOLE		4806.0	8 1/2	4805.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
1033	1.02			Seawater	
1210	1.31	16.0		Glydril WBM	
1795	1.40	22.0		Glydril WBM	
1955	1.39	20.0		Glydril WBM	



2125	1.54	25.0		Glydril	
2680	1.72	69.0		Versatec	
4156	1.77	66.0		Versatherm	
4202	1.80	79.0		Versatherm	
4213	1.89	38.0		Versatherm	
4470	1.89	46.0		Versatherm	
4805	1.89	62.0		Versatherm	
4805	1.89	61.0		Versatherm	

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]
6332_Formalion_pressure_(Formasjonstrykk)	pdf	0.29

