

**General information**

Wellbore name	6407/7-7 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
Field	NJORD
Discovery	6407/7-7 S
Well name	6407/7-7
Seismic location	NH9701:inline 1556 & crossline 564
Production licence	107
Drilling operator	Norsk Hydro Petroleum AS
Drill permit	1138-L
Drilling facility	TRANSOCEAN WINNER
Drilling days	49
Entered date	03.08.2007
Completed date	20.09.2007
Release date	20.09.2009
Publication date	21.09.2009
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	ILE FM
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	TILJE FM
Kelly bushing elevation [m]	26.0
Water depth [m]	334.0
Total depth (MD) [m RKB]	3886.0
Final vertical depth (TVD) [m RKB]	3678.0
Maximum inclination [°]	54.7
Bottom hole temperature [°C]	141
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	ÅRE FM
Geodetic datum	ED50
NS degrees	64° 17' 40.1" N



EW degrees	7° 7' 10.5" E
NS UTM [m]	7131351.02
EW UTM [m]	408999.47
UTM zone	32
NPDID wellbore	5550

Wellbore history

**General**

Well 6407/7-7 S was drilled on the North West Flank of the Njord Field in the Norwegian Sea. The Njord North West Flank consists of two main fault blocks, A and B-main. Well 6407/7-6 was drilled on the B-main structure in 2000 and confirmed the presence of rich gas condensate in the Tilje Formation, with a GWC at 3749 m TVD MSL. Well 6407/7-7 S is the first exploration well to be drilled into the A structure. The primary objective of well 6407/7-7 S was to prove commercial hydrocarbon resources within the Early Jurassic Tilje Formation and the Middle Jurassic Ile Formation.

Operations and results

Well 6407/7-7 S was spudded on 3 August 2007 as a producer 6407/7-B1 Y1H and drilled down to TD of the 17 1/2" section at 2270 m where a 14" casing was set. The exploration well 6407/7-7 S started when drilling out of the 14" casing and into the A-segment of the Njord North West Flank. The hole was vertical down to ca 1290 m. Hole deviation was ca 11 deg at 2270, increasing to 54 deg at 2770 m and falling back again to 6 deg at TD. The well was drilled with the semi-submersible installation Transocean Winner to final TD at 3886 m (3678 m TVD) in Early Jurassic sediments of the Åre Formation. The well was drilled with seawater down to 2270 m and with VERSATEC oil based mud from 2270m to TD.

Top Ile Formation was encountered at 3376 m. Hydrocarbons were discovered in the Ile, Tilje and Åre Formations. MDT pressure points show that the Åre-Tilje reservoir is about 26 bar overpressured compared to the Ile compartment. There were also indications of hydrocarbons in the Lower Cretaceous Lange Formation intra-sands, but too low permeability made it impossible to record pressure points and get fluid samples.

Five cores were cut in the well. Core 1 was cut at 3378 - 3405 m in the Ile Formation. Cores 2 to 5 were cut from 3589 m to 3720.5 m in the Tilje Formation and ca 8 m into the top of the Åre Formation. Condensate and oil samples were taken on MDT wire line at several levels in the Early - Middle Jurassic. Typical fluid characteristics from single stage separation in the PVT laboratory were: condensate from 3397 m in the Ile Formation had GOR = 1250 Sm³/Sm³, oil density = 0.803 g/cm³, and gas gravity of 0.790 (air = 1); condensate from 3623.35 m in the Tilje Formation had GOR = 1340 Sm³/Sm³, oil density = 0.810 g/cm³, and gas gravity of 0.763 (air = 1); condensate from 3718.5 m in the Åre Formation had GOR = 770 Sm³/Sm³, oil density = 0.813 g/cm³, and gas gravity of 0.787 (air = 1); condensate from 3733 m in the Åre Formation had GOR = 540 Sm³/Sm³, oil density = 0.813 g/cm³, and gas gravity of 0.822 (air = 1); while the oil from 3829 m in the Åre Formation had GOR = 440 Sm³/Sm³, oil density = 0.821 g/cm³, and gas gravity of 0.885 (air = 1).

The well was plugged back to the 14" casing from where drilling of the producer 6407/7-B1 Y1H was resumed by performing a side track inside casing. The 6407/7-7 S well bore was permanently abandoned on 20 September 2007 as a condensate/gas discovery.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
420.00	1950.00

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	3378.0	3405.2	[m]
2	3578.0	3604.7	[m]
3	3605.0	3633.2	[m]
4	3633.2	3686.7	[m]
5	3687.0	3715.0	[m]

Total core sample length [m]	163.6
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
DST		3397.00	0.00	CONDE NSATE	19.05.2010 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
360	NORDLAND GP
360	NAUST FM
1141	KAI FM
1161	HORDALAND GP
1161	BRYGGE FM
1845	ROGALAND GP
1845	TARE FM
2008	TANG FM
2107	SHETLAND GP
2107	SPRINGAR FM
2152	NISE FM
2450	KVITNOS FM
2919	CROMER KNOLL GP
2919	LANGE FM



3227	NO FORMAL NAME
3327	LYR FM
3329	VIKING GP
3329	SPEKK FM
3334	MELKE FM
3346	FANGST GP
3346	NOT FM
3376	ILE FM
3466	BÅT GP
3466	ROR FM
3576	TILJE FM
3712	ÅRE FM

Geochemical information

Document name	Document format	Document size [MB]
5550_01_6407_7_7S_gch_transfer_1	txt	0.00
5550_02_6407_7_7S_gch_results_1	txt	0.01
5550_1	pdf	0.27
5550_2	pdf	2.32

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CMR XPT	3180	3880
GR RES DEN NEU BAT DIR PWD	3182	3886
MDT (2MS EYES LFA PS PA) TLC	3733	3846
MDT (2MS LFA PS PA) TLC	3733	3300
MDT (PS SC 2MS PQ)	3397	3664
MWD - DIR	360	452
MWD - GR RES DIR	452	1253
MWD - GR RES DIR PWD	1253	3182
PEX ECS	2270	3885
RT-SCANER SON-SCANNER	1905	3890
VI VSP WA VSP	1103	3870

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	434.0	36	440.0	0.00	LOT
SURF.COND.	20	1246.0	26	1250.0	1.74	LOT
INTERM.	14	2266.0	17 1/4	2270.0	1.90	LOT
OPEN HOLE		3886.0	12 1/4	3886.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
2273	1.61	49.0		OIL BASED	
2573	1.60	55.0		OIL BASED	
3182	1.60	55.0		OIL BASED	
3378	1.60	57.0		OIL BASED	
3586	1.61	79.0		OIL BASED	
3715	1.63	74.0		OIL BASED	
3886	1.61	62.0		OIL BASED	
3886	1.65	72.0		OIL BASED	
3886	1.60	69.0		OIL BASED	

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]
5550 Formation pressure (Formasjonstrykk)	pdf	0.30

