

**General information**

Wellbore name	35/9-10 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	NOVA
Discovery	35/9-7 Nova
Well name	35/9-10
Seismic location	RD1201.inline 2306 & crossline 872
Production licence	418
Drilling operator	Wintershall Norge AS
Drill permit	1499-L
Drilling facility	TRANSOCEAN ARCTIC
Drilling days	53
Entered date	26.11.2013
Completed date	16.01.2014
Release date	16.01.2016
Publication date	16.01.2016
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL/GAS
Discovery wellbore	NO
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	INTRA HEATHER FM SS
Kelly bushing elevation [m]	24.0
Water depth [m]	365.0
Total depth (MD) [m RKB]	3203.0
Final vertical depth (TVD) [m RKB]	2862.0
Maximum inclination [°]	48
Oldest penetrated age	MIDDLE JURASSIC
Oldest penetrated formation	RANNOCH FM
Geodetic datum	ED50
NS degrees	61° 15' 7.1" N
EW degrees	3° 41' 3.9" E
NS UTM [m]	6791207.55
EW UTM [m]	536725.04



UTM zone	31
NPDID wellbore	7321

Wellbore history

General

Well 35/9-10 A is a geologic sidetrack to 35/9-10 S. Sidetrack 35/9-10 was drilled to appraise the southwest flank of the 35/9-7 Skarfjell discovery. The Skarfjell discovery is situated on the Uer Terrace between the Fram and the Gjøa Fields in the North Sea. The primary objective was to prove additional reserves in the Late Jurassic Intra Heather Sandstones. Two such sandstones were expected.

Operations and results

Wildcat well 35/9-10 A was drilled with the semi-submersible installation Transocean Arctic. It was kicked off from 930 m in the primary well bore on 26 November 2013 and drilled to 976 m where it was observed that the BHA did not follow the planned well path. A new kick-off plug was placed and a second kick-off from 878.5 m was made. This well path is termed 35/9-10 AT2. It was drilled successfully to TD at 3203 m (2862 m TVD) m in the Middle Jurassic Rannoch Formation. The well was drilled deviated down to ca 2700 m and vertical from there to TD. The deviated section had a sail angle of ca 47 °. No significant problem was encountered in the operations. The well was drilled with seawater XP-07 oil based mud from kick-off to TD.

Sidetrack 35/9-10 A, drilled near the top of the structure in the southwest, found a 59-meter gross gas column in the Intra Heather Sandstone 2 (IHS 2). The IHS 2 was penetrated from 2734.5 to 2793 m (2393 to 2451.5 m TVD). It had better reservoir properties than expected with a 66% N/G and an average porosity of 25%. Pressure data indicate that the gas cap is in communication with the oil proven in the 35/9-7 & -8 wells in the northern part of Skarfjell. The Intra Heather Sandstone 1 (IHS 1) was penetrated from 2932.5 to 2936.5 m (2590.9 to 2594.1 m TVD). It contained oil and had reservoir quality lower than expected: 53% N/G and an average porosity of 12%. Only one pressure point could be taken in the IHS 1, so no reliable gradient can be constructed, but the IHS 1 at 35/9-10 A does not seem to be in communication with the rest of Skarfjell. No oil shows were described other than in the Intra Heather sandstones.

Four cores were cut. Core 1 was cut from 2776 to 2779 m, but recovered only 1.6 m (53% recovery). Cores 2 and 3 were cut from 2779 m to 2851 m with 100% recovery. Core 4 was cut from 2885 to 2921 m with 100% recovery. RCX fluid samples were taken at 2753.1 m (IHS 2; gas/condensate), 2772.8 m (IHS 2; gas/condensate), 2826.4 m (IHS 2; gas/condensate), and 2934.5 m (oil).

The well was permanently abandoned on 16 January 2014 as a gas and 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]
940.00	3203.00

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	2776.0	2777.6	[m]
2	2779.0	2814.8	[m]
3	2815.0	2850.7	[m]
4	2885.0	2922.0	[m]

Total core sample length [m]	110.1
Cores available for sampling?	YES

Comments	Kjerneintervall 2833-2903 ikke tilgjengelig hos OD
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Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
389	NORDLAND GP
389	UNDIFFERENTIATED
616	UTSIRA FM
656	HORDALAND GP
656	NO FORMAL NAME
1083	NO FORMAL NAME
1095	GRID FM
1112	NO FORMAL NAME
1181	FRIGG FM
1248	NO FORMAL NAME
1263	ROGALAND GP
1263	BALDER FM
1325	SELE FM
1377	LISTA FM



1442	NO FORMAL NAME
1720	LISTA FM
1928	VÅLE FM
1994	SHETLAND GP
1994	JORSALFARE FM
2159	KYRRE FM
2725	VIKING GP
2725	DRAUPNE FM
2728	HEATHER FM
2735	INTRA HEATHER FM SS
2793	HEATHER FM
2933	INTRA HEATHER FM SS
2937	HEATHER FM
3098	BRENT GP
3098	NESS FM
3153	ETIVE FM
3172	RANNOCH FM

Logs

Log type	Log top depth [m]	Log bottom depth [m]
DSL CN ZDL ORIT XMAC HDIL	389	3202
GR CCL SBT VDL	2225	2721
GR GEOWAVES	501	3203
GR GXPL ORIT UXPL	2720	3194
GR MREX FLEX	2723	2974
GR PCOR	2735	2936
GR R6TC IFX RCX SNLT	2735	3167
LWD - DIR PWD	389	976
LWD - DIR PWD GR RES	454	898
LWD - DIR PWD GR RES SON	976	2733
LWD - DIR PWD GR RES SON DEN NEU	2733	2766
AAC ABR CAL DEN GR NEU REMP	2851	3203

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
INTERM.	9 5/8	2727.0	12 1/4	2733.0	1.90	
OPEN HOLE		3203.0	8 1/2	3203.0	0.00	

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
667	1.02			Sea water	
844	1.36	29.0		Yellow XPO7	
973	1.29	23.0		Yellow XP-07	
1266	1.31	23.0		Yellow XP-07	
1625	1.33	24.0		Yellow XP-07	
2453	1.28	35.0		Yellow XPO7	
2733	1.36	30.0		Yellow XP-07	
2776	1.28	22.0		Yellow XPO7	
3203	1.28	23.0		Yellow XPO7	