



Generell informasjon

Brønnbane navn	35/9-10 S
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	NOVA
Funn	35/9-7 Nova
Brønn navn	35/9-10
Seismisk lokalisering	RD 1201 inline 2306 & crossline 872
Utvinningstillatelse	418
Boreoperatør	Wintershall Norge AS
Boretillatelse	1478-L
Boreinnretning	TRANSOCEAN ARCTIC
Boredager	42
Borestart	16.10.2013
Boreslutt	26.11.2013
Frigitt dato	26.11.2015
Publiseringsdato	14.01.2016
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL/GAS
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	INTRA HEATHER FM SS
Avstand, boredekk - midlere havflate [m]	24.0
Vanndybde ved midlere havflate [m]	365.0
Totalt målt dybde (MD) [m RKB]	3619.0
Totalt vertikalt dybde (TVD) [m RKB]	3132.0
Maks inklinasjon [°]	51.9
Eldste penetrerte alder	MIDDLE JURASSIC
Eldste penetrerte formasjon	RANNOCH FM
Geodetisk datum	ED50
NS grader	61° 15' 7.1" N
ØV grader	3° 41' 3.9" E



NS UTM [m]	6791207.55
ØV UTM [m]	536725.04
UTM sone	31
NPDID for brønnbanen	7259

Brønnhistorie

General

Well 35/9-10 S was drilled to appraise the southeast 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 oil reserves in the Late Jurassic Intra Heather Sandstones. Two such sandstones were expected.

Operations and results

Appraisal well 35/9-10 S was spudded with the semi-submersible installation Transocean Arctic on 16 October 2013 and drilled to TD at 3619 m (3132 m TVD) m in the Middle Jurassic Rannoch Formation. The well was drilled vertical down to ca 800 m and below ca 2920 m. The deviated section in between had a sail angle of ca 51 °. No significant problem was encountered in the operations. The well was drilled with spud mud down to 459 m, with KCI/GEM polymer mud from 459 m down to 898 m, and with XP-07 oil based mud from 898 m to TD.

The first Intra Heather Formation sandstone (IHS 2) was encountered at 3067 m (2581.6 m TVD). IHS 2 held a 13-meter gross gas column above an oil column of 49-meter gross in 3 thin sandstones. The IHS 2 has a 115 m gross thickness with 20% N/G at the 35/9-10 S location. The average porosity is 18% (10% cut off applied). Pressure data shows that this area has a lower reservoir pressure and is not in direct communication with the western and northern part of Skarfjell. The second Intra Heather Formation sandstone (IHS 1) was encountered at 3293 m (2807 m TVD) with a 16 m gross thickness. IHS 1 had a N/G of 56% and 15% porosity. The IHS 1 was found oil bearing, but the pressure data show a different pressure gradient than in the IHS 2, so there is no communication between the IHS 1 and 2. In addition, there is no pressure communication between IHS 1 and the western and northern part of Skarfjell. No oil shows were described other than in the Intra Heather sandstones.

A total of 109.5 m core was recovered in four cores. Cores one and two were cut from 3068 to 3105 m. Cores 3 and 4 were cut from 3136.5 to 3209 m. RCX fluid samples were taken in the IHS 2 reservoir at 3067.1 m (gas/condensate), 3076.4 m (oil), 3162.8 m (oil), and 3175.4 m (oil). IHS 1 was not sampled.

The well was plugged back for side tracking on 25 November 2013 as an oil and gas appraisal well.

Testing

No drill stem test was performed.

Borekaks i Sokkeldirektoratet



Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
910.00	3618.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3068.0	3098.7	[m]
2	3099.5	3105.0	[m]
3	3136.5	3173.0	[m]
4	3173.0	3208.0	[m]

Total kjerneprøve lengde [m]	107.7
Kjerner tilgjengelig for prøvetaking?	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
389	NORDLAND GP
389	UNDIFFERENTIATED
616	UTSIRA FM
656	HORDALAND GP
656	NO FORMAL NAME
1088	NO FORMAL NAME
1102	GRID FM
1181	FRIGG FM
1255	NO FORMAL NAME
1277	ROGALAND GP
1277	BALDER FM
1339	SELE FM
1398	LISTA FM
1550	NO FORMAL NAME
1680	LISTA FM
1974	VÅLE FM
2035	SHETLAND GP
2035	JORSALFARE FM
2214	KYRRE FM



2922	TRYGGVASON FM
2980	BLODØKS FM
2991	SVARTE FM
3040	VIKING GP
3040	DRAUPNE FM
3054	HEATHER FM
3067	INTRA HEATHER FM SS
3183	HEATHER FM
3278	INTRA HEATHER FM SS
3293	HEATHER FM
3517	BRENT GP
3517	NESS FM
3570	ETIVE FM
3580	RANNOCH FM

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
DSL CN ZDL ORIT XMAC HDIL	365	3619
DSL MREX	3015	3305
GHTU GWUS	1100	3600
GR 6TC IFX RLVP RCX SNTL	3067	3563
GR GXPL ORIT UXPL	2949	3619
GR PCOR	3054	3292
LWD - DIR	389	454
LWD - DIR ECD GR RES SON	2958	3619
LWD - DIR PWD GR RES	454	945
LWD - DIR PWD GR RES SON	945	2958

Foringsrør og formasjonsstyrketester

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm3]	Type formasjonstest
CONDUCTOR	30	454.0	36	459.0	0.00	
SURF.COND.	20	896.0	26	898.0	1.69	
OPEN HOLE		945.0	17 1/2	945.0	0.00	
INTERM.	9 5/8	2949.0	12 1/4	2958.0	1.90	
OPEN HOLE		3619.0	8 1/2	3619.0	0.00	



Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm ³]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
467	1.29	20.0		KCL Polymer	
737	1.29	16.0		KCL Polymer	
845	1.36	27.0		Yellow XP-07	
898	1.29	16.0		KCL Polymer	
949	1.36	24.0		Yellow XP-07	
1556	1.33	25.0		Yellow XP-07	
2235	1.33	27.0		Yellow XP-07	
2839	1.36	21.0		Yellow XP-07	
2958	1.28	20.0		Yellow XP-07	
3619	1.28	19.0		Yellow XP-07	