



Generell informasjon

Brønnbane navn	7220/11-3 AR
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	BARENTS SEA
Funn	7220/11-1 (Alta)
Brønn navn	7220/11-3
Seismisk lokalisering	LN12M01 inline 29006 xline 24350
Utvinningstillatelse	609
Boreoperatør	Lundin Norway AS
Boretillatelse	1621-L
Boreinnretning	LEIV EIRIKSSON
Boredager	77
Borestart	27.07.2016
Boreslutt	10.10.2016
Plugget og forlatt dato	10.10.2016
Frigitt dato	10.10.2018
Publiseringsdato	10.10.2018
Opprinnelig formål	APPRAISAL
Gjenåpnet	YES
Årsak til gjenåpning	DRILLING/TESTING/PLUGGING
Innhold	OIL/GAS
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE TRIASSIC
1. nivå med hydrokarboner, formasjon.	KLAPPMYSS FM
2. nivå med hydrokarboner, alder	EARLY TRIASSIC
2. nivå med hydrokarboner, formasjon	NO FORMAL NAME
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	397.0
Totalt målt dybde (MD) [m RKB]	2600.0
Totalt vertikalt dybde (TVD) [m RKB]	2414.1
Maks inklinasjon [°]	41.3
Eldste penetrerte alder	CARBONIFEROUS



Eldste penetrerte formasjon	UGLE FM
Geodetisk datum	ED50
NS grader	72° 1' 12.62" N
ØV grader	20° 31' 41.23" E
NS UTM [m]	8000137.25
ØV UTM [m]	690231.43
UTM sone	33
NPDID for brønnbanen	7959

Brønnhistorie



Wellbore history

General

Re-entry well 7220/11-3 AR was drilled to appraise the Alta Discovery on the southern part of the Loppa High in the Barents Sea. The objectives were to deepen the 7220/11-3 A well bore to Permian and Carboniferous strata, to evaluate the reservoir properties of Permian and Carboniferous carbonates (Ørn and Falk Formations), and to test the productivity of the Permo-Triassic Alta reservoir by a drill stem test.

Operations and results

Appraisal well 7220/11-3 A was re-entered with the semi-submersible installation Leiv Eiriksson on 27 June 2016. The extension was drilled as a 6-inch hole from 2130 m to a total depth of 2600 m (2414 m TVD) in the Carboniferous Ugle Formation. When drilling at 2246 m in fractured carbonates mud losses occurred. This caused 74 hrs NPT. During P&A the drill string parted when cutting and retrieving wellhead. This caused 43.5 hrs NPT. The well was drilled with KCl/Polymer/GEM mud from 2130 to TD.

The re-entry was drilled entirely within the water zone below the Alta reservoir. MDT pore pressure measurements confirmed the expected Permian water pressures and gradient previously seen in the 7220/11-1 discovery. The pressure points further confirmed a Free Water Level of 1924 m TVD MSL as found in well 7220/11-3 A. Traces of residual oil were observed in the dolomites and limestones from below the FWL (2089 m MD RKB for Leiv Eiriksson), down to approximately 2205 m.

Nine conventional cores were cut in four different coring runs in the interval 2133 to 2298.6 m. In total, 24.9 m was recovered. MDT fluid samples were acquired from two sampling stations in the water zone, one at 2161.1 m in the Ørn Formation and one at 2337.0 m in the Falk Formation. All samples contained water with minor dissolved gas.

The well was permanently abandoned on 10 October 2016 as an oil and gas appraisal well.

Testing

Three drill stem tests were performed in the well.

DST1 was a water injection test in the interval 2330 to 2360 m in the Falk Formation. The test performed with an injection rate of 800 m³ seawater/day

DST2 was a water injection test in the interval 2150 to 2180 m in the Ørn Formation. The test performed with an injection rate of 2900 m³ seawater/day

DST3 tested the interval 2012 to 2020 m in the Klappmyss Formation. This test produced 595,000 Sm³ gas per day through a 64/64 inch choke.

>

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
2133.00	2600.00



Borekaks tilgjengelig for prøvetaking?	YES
--	-----

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	2133.0	2134.5	[m]
2	2140.5	2140.9	[m]
3	2143.0	2147.2	[m]
4	2149.2	2150.8	[m]
5	2186.0	2193.3	[m]
6	2193.3	2196.3	[m]
7	2196.8	2202.5	[m]
8	2297.0	2297.6	[m]
9	2297.8	2298.5	[m]

Total kjerneprøve lengde [m]	24.9
Kjerner tilgjengelig for prøvetaking?	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
427	NORDLAND GP
427	UNDIFFERENTIATED
429	SOTBAKKEN GP
429	TORSK FM
575	ADVENTDALEN GP
575	KOLMULE FM
601	KAPP TOSCANA GP
601	SNADD FM
1982	SASSENDALEN GP
1982	KOBBE FM
2013	KLAPPMYSS FM
2064	UNDEFINED GP
2124	GIPSDALEN GP
2124	ØRN FM
2252	FALK FM
2535	UGLE FM



Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
3.0	2012	2020	25.4

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningsstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
3.0				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
3.0		595000			

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
FMI MSIP	2144	2593
HRLA PEX ADT GR	2127	2592
MDT	2161	2337
MSCT GR	2138	2579
MWD - OTK BCPM2	2130	2133
MWD - OTK BCPM2 LTK STK	2091	2596
VSI	2115	2161
VSI	2115	2161
XPT CMR NEXT GR	2127	2573

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	488.6	36	489.0	0.00	
SURF.COND.	20	585.1	26	593.0	1.41	LOT
PILOT HOLE		593.0	9 7/8	593.0	0.00	
INTERM.	13 3/8	1072.3	17 1/2	1080.0	1.40	LOT



INTERM.	9 5/8	1899.7	12 1/4	1908.0	1.45	LOT
LINER	7	2128.5	8 1/2	2130.0	0.00	
		2133.0		0.0	1.35	FIT
LINER	5	2504.8	6	0.0	0.00	
OPEN HOLE		2600.0	6	2600.0	0.00	

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
926	1.21	15.0		KCL/Gem	
926	1.15	12.0		KCL/Gem	
1609	1.21	15.0		KCL/Gem	
1609	1.20	12.0		KCL/Gem	
1633	1.14	14.0		KCL/Gem	
2138	1.14	14.0		WBM	
2145	1.14	18.0		KCL/Polymer/Gem	
2297	1.14	15.0		KCL/Gem	
2448	1.14	14.0		KCL/Gem	
2448	1.02	1.0		Other	
2448	1.14	1.0		BRINE	
2470	1.14	16.0		KCL/Gem	
2511	1.02	1.0		Other	
2511	1.13	1.0		BRINE	
2511	1.15	13.0		KCL/Gem	
2600	1.14	16.0		KCL/Gem	