Generell informasjon

Brønnbane navn	7321/7-1
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	BARENTS SEA
Brønn navn	7321/7-1
Seismisk lokalisering	D-16-84 SP 3410
Utvinningstillatelse	140
Boreoperatør	Mobil Exploration Norway INC
Boretillatelse	582-L
Boreinnretning	ROSS RIG (2)
Boredager	119
Borestart	26.06.1988
Boreslutt	22.10.1988
Frigitt dato	22.10.1990
Publiseringsdato	05.01.2005
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	GAS SHOWS
Funnbrønnbane	NO
Avstand, boredekk - midlere havflate [m]	23.5
Vanndybde ved midlere havflate [m]	475.0
Totalt målt dybde (MD) [m RKB]	3550.0
Totalt vertikalt dybde (TVD) [m RKB]	3545.0
Maks inklinasjon [°]	7.5
Temperatur ved bunn av brønnbanen [°C]	121
Eldste penetrerte alder	MIDDLE TRIASSIC
Eldste penetrerte formasjon	SNADD FM
Geodetisk datum	ED50
NS grader	73° 25' 55.57'' N
ØV grader	21° 4' 31.75'' E
NS UTM [m]	8158249.22
ØV UTM [m]	311704.77
UTM sone	35
NPDID for brønnbanen	1284

Brønnhistorie

General

Well 7321/7-1 was the first well drilled on the license. It is located in the Fingerdjupet Sub-basin in the Bjørnøya Øst area. The primary objective of the well was Jurassic to Triassic sandstones in a rotated fault block. Potential was expected throughout the Middle Jurassic to Base Carnian interval.

Operations and results

Wildcat well 7321/7-1 was spudded with the semi-submersible installation Ross Rig 26 June 1988 at a depth of 3550 m in Early Triassic rocks. The hole was drilled to 526 m and then abandoned due to building up of the angle. The rig was moved 13 m and the well was re-spudded 27 June 1988. The hole was drilled to setting depth for 20" casing without returns to the surface. During drilling of 17 1/2" hole section, problems with loss of drilling mud to believed weak/fractured formation occurred. This lead to setting of 13 3/8" casing shoe at 1430 m, 770 m higher than planned. The problem with loss of mud continued below 13 3/8" casing shoe and down to 1813 m where the loss was considerably reduced. During drilling of the Jurassic and Triassic sequences no drilling mud was lost to the formation. Except from two fishing operations no significant drilling problems were experienced. The well was drilled with seawater and hi-vis pills down to 982 m and with gelled seawater / polymer from 982 m to TD. There was no shallow gas in the hole.

Top reservoir (Stø Formation) was encountered at 1998.5 m, 97.5 m deeper than prognosed. An Intra Carnian reflector prognosed at 2736 m and was encountered at 2751 m, only 15 m deeper than prognosed. Near bottom a Carnian seismic reflector was encountered at 3448 m. The mud log and wire line logs indicated good reservoir parameters for a gas sand in the interval 2384.8 m to 2390.4 m in the Snadd Formation. Log analysis showed good porosity and low water saturation, 21.2% and 31.1% respectively. Core analysis indicated clean sand with high porosity. Core permeabilities were greater than 100 mD, but RFT pressure tests and sampling did not support this. The conclusion was that the 5.5 m sand was gas bearing but the permeability is low. Production from the well would probably be dry gas at low rates. Very weak shows were recorded from 1320 m to 1435 m in the Kolje Formation, from 2003 m to 2053 m in the Stø Formation, and from 3472 m to 3487 m in the Snadd Formation. Organic geochemical studies detected potential source rock all through the well in the Adventdalen and Kapp Toscana Groups. The kerogen was reported as mature for petroleum generation as shallow as in the Adventdalen Group (base at 1918 m), and as "highly mature" in the Kapp Toscana Group.

Four cores were attempted, but due to very low rates of penetration the coring program was severely reduced. The first core was cut in the Early Cretaceous Knurr Formation. A second core was attempted in the Stø Formation, but was aborted due to no penetration. The third core was cut in the Middle Jurassic Stø Formation and a final core was cut in a sandstone in the Snadd Formation. Four RFT fluid samples were taken. One sample was taken in the Stø Formation at 2002.5 m, recovering 3.3 litres of water and 3.3 litres of solution gas. The RFT pressure tests indicate no permeability or moderate permeability at best in the sample zone. Two RFT samples were taken in the Snadd "gas sand", at 2388 m and at 2389.8 m. Both were terminated early due to slow pressure build-up. The 2-3/4 gallon sample taken at 2388 m contained 36.2 litres of gas and 233 ml of water. The flowing pressure while sampling was less than 100 psia, with an initial formation pressure of 3396.5 psia, and the chamber was not filled in 30 minutes. The 1-gallon sample taken at 2389.8 m contained only 1.5 litres of gas and 100 ml of filtrate. It had a similar pressure build-up and was terminated after 15 minutes. The fourth RFT

fluid sample was taken at 3348 m in Base Carnian sandstone. The sample recovered only 100 ml of mud filtrate and was terminated after 15 minutes due to the low flowing pressure of 50 psia. The formation pressure is 5035.6 psia.

The well was permanently abandoned on 22 October 1988 as a dry hole.

Testing

No drill stem test was performed

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
990.00	3550.00

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1907.0	1910.0	[m]
2	2003.0	2004.0	[m]
3	2004.0	2007.5	[m]
4	2386.0	2394.7	[m]

Total kjerneprøve lengde [m]	16.2
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder


1907-1909m


2003-2007m


2386-2391m


2391-2394m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
613.0	[m]	SWC	RRI
630.0	[m]	SWC	RRI
650.0	[m]	SWC	RRI
670.0	[m]	SWC	RRI
682.0	[m]	SWC	RRI
694.0	[m]	SWC	RRI
712.0	[m]	SWC	RRI
724.0	[m]	SWC	RRI
742.0	[m]	SWC	RRI
754.0	[m]	SWC	RRI
765.0	[m]	SWC	RRI
779.0	[m]	SWC	RRI
798.0	[m]	SWC	RRI
817.0	[m]	SWC	RRI
830.0	[m]	SWC	RRI
842.0	[m]	SWC	RRI
866.0	[m]	SWC	RRI
878.0	[m]	SWC	RRI
890.0	[m]	SWC	RRI
902.0	[m]	SWC	RRI
914.0	[m]	SWC	RRI
926.0	[m]	SWC	RRI
938.0	[m]	SWC	RRI
950.0	[m]	SWC	RRI
962.0	[m]	SWC	RRI
974.0	[m]	SWC	RRI
990.0	[m]	DC	RRI
1000.0	[m]	DC	RRI
1010.0	[m]	DC	RRI
1019.0	[m]	DC	RRI
1030.0	[m]	DC	RRI
1037.5	[m]	SWC	RRI
1050.0	[m]	DC	RRI
1065.0	[m]	DC	RRI
1068.0	[m]	DC	RRI
1080.0	[m]	DC	RRI
1090.0	[m]	DC	RRI
1100.0	[m]	DC	RRI
1110.0	[m]	DC	RRI

1116.0	[m]	SWC	RRI
1120.0	[m]	DC	RRI
1130.0	[m]	DC	RRI
1140.0	[m]	DC	RRI
1150.0	[m]	DC	RRI
1160.0	[m]	DC	RRI
1170.0	[m]	DC	RRI
1180.0	[m]	DC	RRI
1190.0	[m]	DC	RRI
1200.0	[m]	DC	RRI
1210.0	[m]	DC	RRI
1220.0	[m]	DC	RRI
1230.0	[m]	DC	RRI
1240.0	[m]	DC	RRI
1250.0	[m]	DC	RRI
1260.0	[m]	DC	RRI
1260.0	[m]	DC	RRI
1270.0	[m]	DC	RRI
1280.0	[m]	DC	RRI
1290.0	[m]	DC	RRI
1300.0	[m]	DC	RRI
1310.0	[m]	DC	RRI
1320.0	[m]	DC	RRI
1330.0	[m]	DC	RRI
1340.0	[m]	DC	RRI
1350.0	[m]	DC	RRI
1360.0	[m]	DC	RRI
1370.0	[m]	DC	RRI
1380.0	[m]	DC	RRI
1390.0	[m]	DC	RRI
1400.0	[m]	DC	RRI
1410.0	[m]	DC	RRI
1420.0	[m]	DC	RRI
1440.0	[m]	DC	RRI
1450.0	[m]	DC	RRI
1460.0	[m]	DC	RRI
1470.0	[m]	DC	RRI
1480.0	[m]	DC	RRI
1500.0	[m]	DC	RRI
1526.0	[m]	DC	RRI

1540.0	[m]	DC	RRI
1550.0	[m]	SWC	RRI
1557.0	[m]	DC	RRI
1580.0	[m]	DC	RRI
1590.0	[m]	DC	RRI
1595.0	[m]	DC	RRI
1610.0	[m]	DC	RRI
1620.0	[m]	DC	RRI
1630.0	[m]	DC	RRI
1650.0	[m]	SWC	RRI
1670.0	[m]	DC	RRI
1680.0	[m]	DC	RRI
1690.0	[m]	DC	RRI
1700.0	[m]	DC	RRI
1710.0	[m]	DC	RRI
1720.0	[m]	DC	OD
1730.0	[m]	DC	RRI
1740.0	[m]	DC	RRI
1750.0	[m]	SWC	RRI
1767.0	[m]	DC	RRI
1774.0	[m]	DC	RRI
1786.0	[m]	DC	RRI
1795.0	[m]	DC	RRI
1807.0	[m]	DC	RRI
1816.0	[m]	DC	RRI
1825.0	[m]	DC	RRI
1834.0	[m]	DC	RRI
1849.0	[m]	DC	RRI
1850.0	[m]	SWC	RRI
1861.0	[m]	DC	RRI
1873.0	[m]	DC	RRI
1885.0	[m]	DC	RRI
1888.0	[m]	SWC	RRI
1891.0	[m]	SWC	RRI
1900.0	[m]	DC	RRI
1900.0	[m]	SWC	RRI
1910.0	[m]	SWC	RRI
1917.5	[m]	SWC	RRI
1920.0	[m]	SWC	RRI
1931.0	[m]	SWC	RRI

1940.0	[m]	SWC	RRI
1941.0	[m]	SWC	RRI
1949.5	[m]	SWC	RRI
1960.0	[m]	SWC	RRI
1970.0	[m]	SWC	RRI
1980.0	[m]	SWC	RRI
1998.0	[m]	SWC	RRI
2000.0	[m]	SWC	RRI
2000.0	[m]	DC	RRI
2003.7	[m]	C	RRI
2011.0	[m]	SWC	RRI
2021.0	[m]	SWC	RRI
2023.0	[m]	SWC	RRI
2039.0	[m]	SWC	RRI
2056.0	[m]	DC	RRI
2064.0	[m]	SWC	RRI
2083.0	[m]	DC	RRI
2102.0	[m]	SWC	RRI
2125.0	[m]	DC	RRI
2143.0	[m]	SWC	RRI
2164.0	[m]	DC	RRI
2185.0	[m]	DC	RRI
2185.0	[m]	SWC	RRI
2205.0	[m]	SWC	RRI
2212.0	[m]	SWC	RRI
2230.0	[m]	DC	RRI
2248.0	[m]	DC	RRI
2269.0	[m]	DC	RRI
2290.0	[m]	DC	RRI
2317.0	[m]	DC	RRI
2320.0	[m]	DC	RRI
2338.0	[m]	DC	RRI
2359.0	[m]	DC	RRI
2377.0	[m]	DC	RRI
2386.7	[m]	C	OD
2387.7	[m]	C	OD
2388.3	[m]	C	OD
2388.5	[m]	C	OD
2388.9	[m]	C	OD
2389.1	[m]	C	OD

2390.0	[m]	C	RRI
2390.3	[m]	C	OD
2390.6	[m]	C	OD
2391.2	[m]	C	OD
2391.6	[m]	C	OD
2392.2	[m]	C	OD
2393.2	[m]	C	OD
2401.0	[m]	SWC	RRI
2413.0	[m]	DC	RRI
2428.0	[m]	DC	RRI
2448.0	[m]	SWC	RRI
2473.0	[m]	DC	RRI
2503.0	[m]	SWC	RRI
2524.0	[m]	DC	RRI
2572.0	[m]	DC	RRI
2601.0	[m]	SWC	RRI
2623.0	[m]	DC	RRI
2655.0	[m]	SWC	RRI
2674.0	[m]	DC	RRI
2698.0	[m]	SWC	RRI
2725.0	[m]	DC	RRI
2740.0	[m]	DC	RRI
2773.0	[m]	DC	RRI
2801.0	[m]	SWC	RRI
2821.0	[m]	DC	RRI
2850.0	[m]	SWC	RRI
2875.0	[m]	DC	RRI
2901.0	[m]	SWC	RRI
2926.0	[m]	DC	RRI
2953.0	[m]	SWC	RRI
2974.0	[m]	DC	RRI
3001.0	[m]	DC	RRI
3025.0	[m]	DC	RRI
3051.0	[m]	SWC	RRI
3099.0	[m]	SWC	RRI
3121.0	[m]	DC	RRI
3148.0	[m]	SWC	RRI
3172.0	[m]	DC	RRI
3203.0	[m]	SWC	RRI
3223.0	[m]	DC	RRI

3239.0	[m]	DC	RRI
3250.0	[m]	DC	RRI
3256.0	[m]	SWC	RRI
3271.0	[m]	DC	RRI
3286.0	[m]	DC	RRI
3302.0	[m]	SWC	RRI
3319.0	[m]	DC	RRI
3337.0	[m]	DC	RRI
3358.0	[m]	DC	RRI
3385.0	[m]	SWC	RRI
3403.0	[m]	DC	RRI
3424.0	[m]	DC	RRI
3444.0	[m]	SWC	RRI
3463.0	[m]	DC	RRI
3500.0	[m]	SWC	RRI
3517.0	[m]	DC	RRI
3544.0	[m]	DC	RRI
3550.0	[m]	DC	RRI

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
499	NORDLAND GP
526	ADVENTDALEN GP
526	KOLMULE FM
1145	KOLJE FM
1892	KNURR FM
1918	HEKKINGEN FM
1965	FUGLEN FM
1999	KAPP TOSCANA GP
1999	STØ FM
2022	NORDMELA FM
2039	FRUHOLMEN FM
2207	SNADD FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
1284	pdf	0.56

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
1284_1	pdf	2.59

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
1284_01_WDSS_General_Information	pdf	0.49
1284_02_WDSS_completion_log	pdf	0.25

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
1284_7321_7_1_COMPLETION_REPORT_AND_LOG	pdf	23.93

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL CDL GR	948	1425
CST GR	613	974
CST GR	1450	3525
CST GR	1450	3500
DIL BHC GR	605	865
DIL BHC GR	1425	3550
DIL LDL CNL SP GR CALI	1425	2450
DIL MSFL BHC GR CALI	960	1434
DIL MSFL LSS GR CALI	750	1434
FMS GR	1425	2150
HRT CCL	449	1530

HRT CCL	1150	1530
HRT CCL	1248	1476
LDL CNL GR CAL	1850	3552
MWD - GR RES DIR	626	3550
RFT GR	1999	2389
RFT GR	2216	3481
SHDT GR	1900	3552
VSP	504	3550

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	609.0	36	626.0	0.00	LOT
SURF.COND.	20	970.0	26	982.0	1.31	LOT
INTERM.	13 3/8	1425.0	17 1/2	1435.0	1.50	LOT
OPEN HOLE		3550.0	12 1/4	3550.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
571	1.03			WATER BASED	28.06.1988
1069	1.07	10.0	10.0	WATER BASED	21.07.1988
1083	1.09	14.0	13.4	WATER BASED	27.07.1988
1127	1.08	10.0	9.5	WATER BASED	27.07.1988
1162	1.08	13.0	9.5	WATER BASED	27.07.1988
1162	1.08	11.0	8.1	WATER BASED	27.07.1988
1162	1.08	43.0	5.7	WATER BASED	27.07.1988
1214	1.08	11.0	7.1	WATER BASED	27.07.1988
1246	1.09	11.0	9.1	WATER BASED	27.07.1988
1384	1.08	7.0	7.1	WATER BASED	28.07.1988
1435	1.08	10.0		WATER BASED	01.08.1988
1435	1.08	7.0	7.2	WATER BASED	01.08.1988
1435	1.08	8.0	6.7	WATER BASED	01.08.1988
1440	1.08	6.0	6.2	WATER BASED	01.08.1988
1478	1.08	7.0	6.7	WATER BASED	04.08.1988
1478	1.08	9.0	7.1	WATER BASED	04.08.1988
1478	1.08	8.0	7.1	WATER BASED	05.08.1988

1478	1.08	9.0	6.7	WATER BASED	08.08.1988
1478	1.08	10.0	7.1	WATER BASED	08.08.1988
1508	1.08	11.0	7.6	WATER BASED	08.08.1988
1508	1.08	11.0	7.6	WATER BASED	09.08.1988
1533	1.07	9.0	7.1	WATER BASED	10.08.1988
1533	1.07	10.0	7.6	WATER BASED	11.08.1988
1533	1.04	7.0	6.7	WATER BASED	15.08.1988
1533	1.04	8.0	6.7	WATER BASED	16.08.1988
1533	1.04	7.0	7.6	WATER BASED	16.08.1988
1533	1.07	10.0	6.7	WATER BASED	12.08.1988
1537	1.06	8.0	8.1	WATER BASED	16.08.1988
1557	1.07	6.0	5.7	WATER BASED	19.08.1988
1570	1.07	8.0	7.6	WATER BASED	19.08.1988
1586	1.04	6.0	6.2	WATER BASED	23.08.1988
1586	1.03	5.0	6.7	WATER BASED	23.08.1988
1606	1.04	5.0	7.1	WATER BASED	23.08.1988
1606	1.03	3.0	4.3	WATER BASED	23.08.1988
1626	1.04	7.0	8.6	WATER BASED	24.08.1988
1644	1.04	4.0	6.2	WATER BASED	25.08.1988
1644	1.04	4.0	6.7	WATER BASED	26.08.1988
1664	1.02			WATER BASED	29.08.1988
1684	1.04	4.0	6.7	WATER BASED	29.08.1988
1684	1.03	5.0	8.1	WATER BASED	29.08.1988
1704	1.02			WATER BASED	30.08.1988
1724	1.04	6.0	7.6	WATER BASED	31.08.1988
1745	1.04	5.0	6.7	WATER BASED	02.09.1988
1765	1.04	6.0	10.0	WATER BASED	05.09.1988
1782	1.04	4.0	7.1	WATER BASED	05.09.1988
1800	1.04	6.0	13.4	WATER BASED	05.09.1988
1810	1.04	6.0	12.4	WATER BASED	05.09.1988
1825	1.07	5.0	10.5	WATER BASED	06.09.1988
1855	1.07	8.0	17.2	WATER BASED	07.09.1988
1885	1.06	6.0	10.5	WATER BASED	09.09.1988
1885	1.07	7.0	11.0	WATER BASED	09.09.1988
1895	1.14	6.0	5.7	WATER BASED	12.09.1988
1895	1.14	7.0	4.3	WATER BASED	12.09.1988
1960	1.14	10.0	5.7	WATER BASED	12.09.1988
2003	1.14	10.0	5.2	WATER BASED	13.09.1988
2021	1.14	10.0	5.7	WATER BASED	14.09.1988
2063	1.14	10.0	5.7	WATER BASED	15.09.1988

2063	1.13	10.0	3.8	WATER BASED	16.09.1988
2103	1.14	11.0	4.7	WATER BASED	19.09.1988
2199	1.14	10.0	5.2	WATER BASED	19.09.1988
2292	1.14	10.0	5.2	WATER BASED	19.09.1988
2302	1.14	10.0	4.8	WATER BASED	20.09.1988
2386	1.14	10.0	4.8	WATER BASED	21.09.1988
2405	1.14	9.0	3.8	WATER BASED	22.09.1988
2450	1.14	9.0	5.2	WATER BASED	23.09.1988
2450	1.14	9.0	5.2	WATER BASED	27.09.1988
2469	1.14	9.0	4.8	WATER BASED	27.09.1988
2600	1.14	9.0	4.8	WATER BASED	27.09.1988
2680	1.14	11.0	4.8	WATER BASED	27.09.1988
2684	1.14	9.0	4.3	WATER BASED	28.09.1988
2730	1.13	10.0	4.3	WATER BASED	29.09.1988
2750	1.14	9.0	3.8	WATER BASED	30.09.1988
2802	1.13	11.0	4.8	WATER BASED	03.10.1988
2870	1.13	12.0	4.8	WATER BASED	03.10.1988
2896	1.13	11.0	5.7	WATER BASED	03.10.1988
2956	1.13	12.0	6.7	WATER BASED	05.10.1988
3040	1.13	13.0	6.2	WATER BASED	05.10.1988
3122	1.13	12.0	5.7	WATER BASED	07.10.1988
3122	1.13	13.0	6.7	WATER BASED	07.10.1988
3202	1.13	11.0	6.2	WATER BASED	10.10.1988
3257	1.13	11.0	5.7	WATER BASED	10.10.1988
3330	1.13	11.0	6.2	WATER BASED	10.10.1988
3386	1.13	11.0	6.2	WATER BASED	11.10.1988
3457	1.13	10.0	5.7	WATER BASED	12.10.1988
3527	1.14	11.0	5.7	WATER BASED	13.10.1988
3550	1.16	12.0	6.7	WATER BASED	14.10.1988

Tynnslip i Sokkeldirektoratet

Dybde	Enhet
2387.50	[m]

Trykkplott

Porertrykksdataene kommer fra logging i brønnen hvis ingen annen kilde er oppgitt. I noen brønner der trykk ikke er logget, er det brukt informasjon fra formasjonstester eller brønnspark. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
1284_Formation_pressure_(Formasjonstrykk)	pdf	0.28