

**General information**

Wellbore name	7120/8-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	BARENTS SEA
Field	SNØHVIT
Discovery	7120/8-1 (Askeladd)
Well name	7120/8-1
Seismic location	LINE 513 - 134 SP: 2224.
Production licence	064
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	292-L
Drilling facility	ROSS RIG (1)
Drilling days	75
Entered date	28.06.1981
Completed date	10.09.1981
Release date	10.09.1983
Publication date	11.02.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	YES
1st level with HC, age	JURASSIC
1st level with HC, formation	STØ FM
Kelly bushing elevation [m]	25.0
Water depth [m]	270.0
Total depth (MD) [m RKB]	2610.0
Final vertical depth (TVD) [m RKB]	2610.0
Maximum inclination [°]	1.5
Bottom hole temperature [°C]	95
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	FRUHOLMEN FM
Geodetic datum	ED50
NS degrees	71° 24' 34.43" N
EW degrees	20° 26' 6.2" E
NS UTM [m]	7923384.58
EW UTM [m]	479897.51



UTM zone	34
NPDID wellbore	120

Wellbore history

General

Wildcat well 7120/8-1 is located in the Snøhvit Field area. It was designed to test possible hydrocarbon accumulations in a seismic closure (Alpha prime structure) located to the east of a major N-S running fault in the western part of the block. The primary target was sandstone of Middle Jurassic age.

Operations and results

Well 7120/8-1 was spudded with the semi-submersible installation Ross Rig on 28 June 1981 and drilled to TD in Late Triassic rocks ((Fruholmen Formation). The 17 1/2" hole was drilled to 1128 m when the lower marine riser accidentally unlatched and two days of rig time were lost curing this problem before drilling could continue. When plugging back the well, gas bubbles were observed in the riser. Four days of rig time were lost before this problem was cured. Apart from this no significant difficulties were encountered and the well was drilled according to schedule. The well was drilled with spud mud down to 358 m, with gel mud from 358 m to 750 m, and with gel/lignosulphonate mud from 750 m to TD.

Relatively dry gas was encountered at 2092 m in sandstone of the Middle to Early Jurassic Stø Formation. Log analysis, confirmed by RFT data, found a gas column down to a water contact at 2180 m. The reservoir sandstone showed good to excellent reservoir properties. Organic geochemical analyses showed TOC levels in the Early Cretaceous mudstones in the range ca 1.3 % to ca 5 %, generally increasing downwards to the base of the Cretaceous. Within the Late Jurassic Hekkingen Formation shales TOC increases from ca 3 % to at the top (1990 m) to more than 9 % at the base. In the Early Jurassic to Triassic below 2190 m occasional shales and thin coal beds have good potential for gas and oil, but are restricted in volume. The sediments are immature for petroleum generation down to ca 2000 m and marginally mature from this depth to TD. Kerogen is generally of Type II, with some addition of Type III in the lower part of Hekkingen Formation below 2012 m. Terrestrial input appears to be high in all potential source rock sequences in the well. Residual oil in the cored section showed a waxy, terrestrial signature. Seven cores were taken. Core 1 was cut in the Middle to Early Jurassic Stø Formation from 2112 m to 2121.5 m. The remaining cores were cut consecutively from 2171.5 m to 2270 m from the base of the Stø Formation and 80 m into the Early Jurassic Nordmela Formation. RFT samples were taken at 2168 m and 2094 m.

The well was permanently abandoned on 10 September 1981 as a gas/condensate discovery.

Testing

Three drill stem tests were carried out in the hydrocarbon-bearing zone.

DST 1 perforated 2165 m to 2172 m and produced 1056000 Sm³ gas and 54 m³ condensate per day on a 64/64" choke in the second flow period. The corresponding GOR is 19540 Sm³/Sm³. The gas gravity was 0.662 (air = 1) with 4.5 % CO₂, and the condensate density was 0.777 g/cm³.

DST perforated the two intervals 2133 m to 2138 m and 2140 m to 2150 m. This test produced 558000 Sm³ gas and 26.7 m³ condensate per day through a 64/64" choke in



the second flow period. The corresponding GOR is 20900 Sm³/Sm³. The gas gravity was 0.666 (air = 1) with 5 % CO₂, and the condensate density was 0.774 g/cm³.

DST 3 perforated 2092 m to 2110 m and produced 954300 Sm³ gas and 53.5 m³ condensate per day through a 64/64" choke in the third flow period. The corresponding GOR is 17860 Sm³/Sm³. The gas gravity was 0.666 (air = 1) with 5 % CO₂, and the condensate density was 0.780 g/cm³.

No H₂S was detected in any of the tests. The tests indicated a very dry gas condensate system. Dew point pressure was 209 barg (3031 psig). Density of reservoir fluid (at DP) was 0.156 g/cm³ (0.068 psi/ft).

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
360.00	2606.00

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	2112.0	2121.4	[m]
2	2171.5	2181.0	[m]
3	2181.0	2195.0	[m]
4	2195.0	2214.0	[m]
5	2214.0	2232.8	[m]
6	2232.8	2251.5	[m]
7	2251.5	2270.0	[m]

Total core sample length [m]	107.9
Cores available for sampling?	YES

Core photos



2112-2115m



2115-2118m



2118-2121m



2121-2121m



2171-2174m



2174-2177m



2177-2180m



2180-2181m



2181-2184m



2184-2187m



2187-2190m



2193-2195m



2198-2201m



2201-2204m



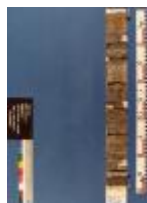
2204-2207m



2207-2210m



2110-2113m



2213-2214m



2214-2217m



2217-2220m



2220-2223m



2223-2223m



2223-2226m



2226-2229m



2229-2232m



2232-2233m



2233-2235



2235-2238m



2238-2241m



2241-2244m



2244-2247m



2247-2250m



2250-2251m



2251-2254m



2254-2257m



2257-2260m



2260-2263m



2263-2266m



2266-2269m



2269-2270m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
360.0	[m]	DC	
365.0	[m]	DC	
365.0	[m]	DC	RRI
400.0	[m]	DC	RRI
450.0	[m]	DC	RRI
495.0	[m]	DC	RRI
510.0	[m]	DC	RRI
525.0	[m]	DC	RRI
540.0	[m]	DC	
540.0	[m]	DC	RRI
545.0	[m]	DC	
555.0	[m]	DC	RRI
570.0	[m]	DC	RRI
585.0	[m]	DC	RRI
595.0	[m]	DC	
600.0	[m]	DC	
695.0	[m]	DC	
700.0	[m]	DC	
735.0	[m]	DC	RRI
765.0	[m]	DC	RRI
780.0	[m]	DC	RRI
795.0	[m]	DC	RRI
810.0	[m]	DC	RRI
825.0	[m]	DC	RRI
840.0	[m]	DC	RRI
855.0	[m]	DC	RRI
870.0	[m]	DC	RRI
885.0	[m]	DC	RRI
1035.0	[m]	DC	



1050.0 [m]	DC	RRI
1065.0 [m]	DC	RRI
1065.0 [m]	DC	
1080.0 [m]	DC	RRI
1095.0 [m]	DC	RRI
1095.0 [m]	DC	
1112.0 [m]	DC	RRI
1127.0 [m]	DC	RRI
1127.0 [m]	DC	
1142.0 [m]	DC	RRI
1157.0 [m]	DC	RRI
1157.0 [m]	DC	
1169.0 [m]	DC	RRI
1184.0 [m]	DC	RRI
1187.0 [m]	DC	
1202.0 [m]	DC	RRI
1208.0 [m]	DC	OD
1217.0 [m]	DC	RRI
1217.0 [m]	DC	
1220.0 [m]	DC	OD
1229.0 [m]	DC	OD
1232.0 [m]	DC	RRI
1238.0 [m]	DC	OD
1247.0 [m]	DC	RRI
1247.0 [m]	DC	
1250.0 [m]	DC	OD
1259.0 [m]	DC	OD
1262.0 [m]	DC	RRI
1277.0 [m]	DC	RRI
1277.0 [m]	DC	
1292.0 [m]	DC	RRI
1307.0 [m]	DC	RRI
1307.0 [m]	DC	
1322.0 [m]	DC	RRI
1337.0 [m]	DC	RRI
1470.0 [m]	SWC	RRI
1487.0 [m]	DC	RRI
1502.0 [m]	DC	RRI
1517.0 [m]	DC	RRI
1527.0 [m]	SWC	RRI



1533.0 [m]	DC	RRI
1538.0 [m]	DC	RRI
1568.0 [m]	DC	RRI
1581.0 [m]	SWC	RRI
1598.0 [m]	DC	RRI
1613.0 [m]	DC	RRI
1628.0 [m]	DC	RRI
1643.0 [m]	DC	RRI
1655.0 [m]	DC	RRI
1657.0 [m]	SWC	RRI
1673.0 [m]	DC	RRI
1688.0 [m]	DC	RRI
1718.0 [m]	DC	RRI
1730.0 [m]	SWC	RRI
1742.0 [m]	DC	RRI
1763.0 [m]	DC	RRI
1770.0 [m]	SWC	RRI
1778.0 [m]	DC	RRI
1785.0 [m]	SWC	RRI
1793.0 [m]	DC	RRI
1808.0 [m]	DC	RRI
1815.0 [m]	SWC	RRI
1823.0 [m]	SWC	RRI
1838.0 [m]	DC	RRI
1850.0 [m]	DC	RRI
1855.0 [m]	SWC	RRI
1868.0 [m]	DC	RRI
1877.0 [m]	DC	RRI
1877.0 [m]	DC	
1898.0 [m]	DC	RRI
1901.0 [m]	SWC	RRI
1907.0 [m]	DC	
1913.0 [m]	DC	RRI
1928.0 [m]	DC	RRI
1937.0 [m]	SWC	RRI
1937.0 [m]	DC	
1943.0 [m]	SWC	RRI
1958.0 [m]	DC	RRI
1967.0 [m]	DC	
1973.0 [m]	DC	RRI



1991.0 [m]	SWC	RRI
1997.0 [m]	DC	
1999.0 [m]	SWC	RRI
2003.0 [m]	DC	RRI
2008.0 [m]	SWC	RRI
2018.0 [m]	SWC	RRI
2027.0 [m]	DC	RRI
2036.5 [m]	SWC	RRI
2048.0 [m]	DC	RRI
2061.0 [m]	SWC	RRI
2065.5 [m]	SWC	RRI
2069.0 [m]	SWC	RRI
2075.0 [m]	SWC	RRI
2082.0 [m]	SWC	RRI
2084.0 [m]	DC	RRI
2087.0 [m]	SWC	RRI
2115.4 [m]	C	RRI
2117.7 [m]	C	RRI
2118.0 [m]	SWC	RRI
2119.5 [m]	C	RRI
2129.5 [m]	SWC	RRI
2137.0 [m]	SWC	RRI
2139.0 [m]	SWC	RRI
2172.0 [m]	C	RRI
2175.4 [m]	C	RRI
2178.0 [m]	C	RRI
2180.9 [m]	C	RRI
2186.6 [m]	C	RRI
2186.9 [m]	C	RRI
2187.4 [m]	C	RRI
2190.0 [m]	C	RRI
2193.6 [m]	C	RRI
2197.5 [m]	C	RRI
2201.5 [m]	C	RRI
2204.0 [m]	C	RRI
2205.5 [m]	C	RRI
2207.9 [m]	C	RRI
2210.8 [m]	C	RRI
2213.6 [m]	C	RRI
2213.9 [m]	C	RRI



2216.6 [m]	C	RRI
2219.4 [m]	C	RRI
2222.7 [m]	C	RRI
2226.8 [m]	C	RRI
2228.5 [m]	C	RRI
2229.8 [m]	C	RRI
2232.7 [m]	C	RRI
2234.9 [m]	C	RRI
2235.4 [m]	C	RRI
2238.6 [m]	C	RRI
2241.2 [m]	C	RRI
2248.0 [m]	C	RRI
2248.1 [m]	C	RRI
2251.3 [m]	C	RRI
2254.4 [m]	C	RRI
2256.7 [m]	C	RRI
2260.2 [m]	C	RRI
2263.4 [m]	C	RRI
2265.7 [m]	C	RRI
2266.9 [m]	C	RRI
2268.5 [m]	C	RRI
2270.0 [m]	DC	RRI
2270.0 [m]	C	RRI
2273.0 [m]	DC	RRI
2279.0 [m]	DC	RRI
2282.0 [m]	DC	RRI
2291.0 [m]	DC	RRI
2294.0 [m]	DC	RRI
2297.0 [m]	DC	RRI
2300.0 [m]	SWC	RRI
2300.0 [m]	DC	RRI
2306.0 [m]	DC	RRI
2312.0 [m]	DC	RRI
2322.0 [m]	SWC	RRI
2339.0 [m]	DC	RRI
2346.5 [m]	SWC	RRI
2359.0 [m]	DC	RRI
2372.0 [m]	DC	RRI
2390.0 [m]	DC	RRI
2417.0 [m]	DC	RRI



2428.5 [m]	SWC	RRI
2447.0 [m]	DC	RRI
2462.0 [m]	DC	RRI
2477.0 [m]	DC	RRI
2492.0 [m]	DC	RRI
2495.0 [m]	SWC	RRI
2521.0 [m]	SWC	RRI
2534.0 [m]	DC	RRI
2567.0 [m]	DC	RRI
2573.0 [m]	SWC	RRI
2582.0 [m]	DC	RRI
2591.0 [m]	SWC	RRI
2597.0 [m]	DC	RRI
2608.0 [m]	SWC	RRI
2609.0 [m]	DC	RRI

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	DST1	2165.00	2172.00		20.08.1981 - 13:00	YES
DST	DST2	2133.00	2138.00		26.08.1981 - 19:00	YES
DST	DST3	2093.00	2110.00		31.08.1981 - 04:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
295	NORDLAND GP
603	SOTBAKKEN GP
603	TORSK FM
1056	NYGRUNNEN GP
1056	KVEITE FM
1150	ADVENTDALEN GP
1150	KOLMULE FM
1650	KOLJE FM
1942	KNURR FM



1990	HEKKINGEN FM
2086	FUGLEN FM
2092	KAPP TOSCANA GP
2092	STØ FM
2190	NORDMELA FM
2330	TUBÅEN FM
2462	FRUHOLMEN FM

Composite logs

Document name	Document format	Document size [MB]
120	pdf	0.44

Geochemical information

Document name	Document format	Document size [MB]
120_1	pdf	7.34
120_2	pdf	3.53

Documents - older Norwegian Offshore Directorate WDSS reports and other related documents

Document name	Document format	Document size [MB]
120_01_WDSS_General_Information	pdf	0.10
120_02_WDSS_completion_log	pdf	0.22

Documents - reported by the production licence (period for duty of secrecy expired)

Document name	Document format	Document size [MB]
120_01_Completion_Report	pdf	13.01
120_02_Completion_log	pdf	1.77

Drill stem tests (DST)





Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2165	2172	36.0
2.0	2133	2138	25.0
3.0	2093	2110	25.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				80
2.0				72
3.0				78

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	48	1049000	0.777	0.662	21854
2.0	27	557000	0.779	0.666	20629
3.0	50	953000	0.780	0.666	19060

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL	500	1807
CBL	1450	2530
CBL	1850	2160
CST	770	1815
CST	1823	2018
CST	2018	2129
CST	2132	2608
CST	2300	2519
DLL MSFL	2025	2270
FDC CNL GR CAL	734	2610
HDT GEODIP	734	2607
ISF SONIC GR SP	270	747
ISF SONIC GR SP MSFL	734	2610
RFT	2094	2264
VELOCITY	550	2600

**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	357.0	36	359.0	0.00	LOT
SURF.COND.	20	735.0	26	750.0	1.49	LOT
INTERM.	13 3/8	1807.0	17 1/2	1822.0	1.64	LOT
INTERM.	9 5/8	2593.0	12 1/4	2610.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
575	1.04	40.0	18.0	spud mud	
1086	1.25	40.0	14.0	water based	
2121	1.40	46.0	11.0	water based	
2181	1.45	48.0	11.0	water based	
2238	1.36	46.0	10.0	water based	
2610	1.30	50.0	12.0	water 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]
120 Formation pressure (Formasjonstrykk)	pdf	0.27

