

**General information**

Wellbore name	7120/8-2
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	BARENTS SEA
Field	SNØHVIT
Discovery	7120/8-1 (Askeladd)
Well name	7120/8-2
Seismic location	513 - 125 SP 2270
Production licence	064
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	324-L
Drilling facility	NORDRAUG
Drilling days	106
Entered date	15.04.1982
Completed date	29.07.1982
Release date	29.07.1984
Publication date	11.02.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS
Discovery wellbore	NO
1st level with HC, age	JURASSIC
1st level with HC, formation	STØ FM
Kelly bushing elevation [m]	25.0
Water depth [m]	245.0
Total depth (MD) [m RKB]	2590.0
Final vertical depth (TVD) [m RKB]	2590.0
Maximum inclination [°]	1.5
Bottom hole temperature [°C]	91
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	FRUHOLMEN FM
Geodetic datum	ED50
NS degrees	71° 20' 15.72" N
EW degrees	20° 27' 57.61" E
NS UTM [m]	7915359.17
EW UTM [m]	480927.89



UTM zone	34
NPDID wellbore	50

Wellbore history

General

The 7120/8-2 well was drilled on the Alpha-South structure in the Western part of the Hammerfest Basin. The first well in the block, well 7120/8-1, was drilled on the Alpha North closure in 1981, north of the major east - west fault splitting the two closures/structures. This well found gas-bearing sandstones in the Middle to Early Jurassic. The primary objective of well 7120/8-2 was to test possible hydrocarbon accumulations in sandstones of Middle to Early Jurassic age (Stø Formation) in the Alpha-South structure.

Operations and results

Well 7120/8-2 was spudded with the semi-submersible installation Neptuno Nordraug on 15 April 1982 and drilled to TD at 2590 m in Late Triassic sediments (Fruholmen Formation). The drilling of the 36" and 26" hole went forth without any problems. After this several problems occurred and 78 days were used to reach TD, 29 days more than programmed. The main hang-ups were: broken 20" csg, partly collapsed 13-3/8" csg, pulled BOP stack, roller system, and stuck stabilizer at 2156 m. The well was drilled with gel/spud mud down to 333 m, with gel/seawater from 333 m to 752 m, and with gel/lignosulphonate/seawater from 752 m to TD.

Hydrocarbon accumulations were discovered in sandstone sequences between 2081-2161 m in the Stø Formation. The reservoir sandstones showed good to excellent reservoir properties. Gas composition from the DST was almost identical to the gas composition of the DSTs performed in the 7120/8-1 well. This was also indicated by gas gradients established from the RFT pressure points taken in the two wells. RFT pressure points from the two wells also indicated that the water zone most likely is in communication. Organic geochemical analyses show TOC in the range 0.7 % to 2.8 % TOC in mudstones from the Early Cretaceous. The kerogen in these samples are Type IV / III with a poor potential, increasing to fair at the base, for gas. Olive black claystones of the Late Jurassic Hekkingen Formation has TOC from 2 % to 12 % with Type III kerogen on top grading to Type II at the base. With a large terrestrial input these source rocks have rich potential for gas, condensate and waxy crude oil. The Jurassic and Late Triassic sequences below the Hekkingen and Fuglen Formations are mainly sandstones interbedded with shale, and in the Early Jurassic and Late Triassic also coal seams appear. The shale interbeds here are classified as poor sources for gas (Type III), while the coals have excellent hydrocarbon potential and may be oil-prone. However, these shales and coals do not constitute a significant volume of source rock in the well position, compared to the Hekkingen Formation. The maturity parameters show an immature well down to ca 2000 m where vitrinite reflection reaches 0.5 %Ro. From here the maturity increases to early oil window/peak oil window at TD, however the coals penetrated by the well are probably all immature in well position. Analyses of shows and a DST condensate from the Early Jurassic sandstones indicate a common source for the shows and the DST condensate. This source is most probably the Hekkingen Formation, but deeper coal seams cannot be excluded as a possibility.

Eight cores were cut in succession from 2085 m in the Stø Formation to 2218 m, 28 meters into the Nordmela Formation. Two RFT samples were taken: one at 2083 m (gas, mud filtrate, formation water) and one at 2150.5 m (mud filtrate, formation water, small volume of gas).



The well was permanently abandoned as a gas appraisal on 29 July 1982.

Testing

One DST was carried out in the interval from 2092-2097 m in the Stø Formation reservoir. The test flowed gas with a small amount of condensate. Condensate density was 0.778 g/cm³ and gas gravity was 0.679 (air = 1) with 4-5% CO₂. No H₂S was detected. Sand production was not observed and water production was limited to mud filtrate and water associated with the gas. The well was initially flowed for 840 min. before being shut in for 1350 min. The well was then opened for a multi -rate flow, which lasted 900 min. before being shut in for 300 min.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
330.00	2588.00

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	2085.0	2101.4	[m]
2	2101.4	2120.0	[m]
3	2120.0	2138.0	[m]
4	2138.0	2153.6	[m]
5	2153.6	2172.0	[m]
6	2172.0	2185.6	[m]
7	2185.5	2200.3	[m]
8	2201.0	2218.5	[m]

Total core sample length [m]	132.9
Cores available for sampling?	YES

Core photos

2085-2090m



2090-2095m



2095-2100m



2100-2101m



2101-2106m



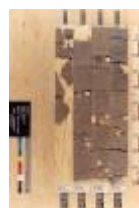
2106-2111m



2101-2106m



2111-2116m



2116-2120m



2120-2125m



2125-2130m



2130-2135m



2135-2138m



2138-2143m



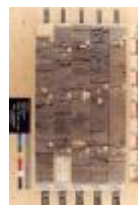
2148-2153m



2153-2154m



2153-2158m



2158-2163m



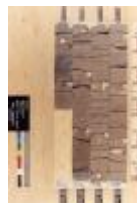
2163-2168m



2168-2172m



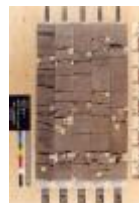
2172-2177m



2182-2185m



2185-2190m



2190-2195m



2195-2000m



2201-2206m



2206-2211m



2211-2216m



2216-2218m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
330.0	[m]	DC	PAS
350.0	[m]	DC	PAS



370.0 [m]	DC	PAS
390.0 [m]	DC	PAS
410.0 [m]	DC	PAS
430.0 [m]	DC	PAS
450.0 [m]	DC	PAS
470.0 [m]	DC	PAS
490.0 [m]	DC	PAS
510.0 [m]	DC	PAS
530.0 [m]	DC	PAS
550.0 [m]	DC	PAS
570.0 [m]	DC	PAS
590.0 [m]	DC	PAS
610.0 [m]	DC	PAS
630.0 [m]	DC	PAS
650.0 [m]	DC	PAS
670.0 [m]	DC	PAS
690.0 [m]	DC	PAS
710.0 [m]	DC	PAS
730.0 [m]	DC	PAS
750.0 [m]	DC	PAS
780.0 [m]	DC	PAS
790.0 [m]	DC	OD
790.0 [m]	DC	PAS
800.0 [m]	DC	OD
810.0 [m]	DC	OD
810.0 [m]	DC	
820.0 [m]	DC	OD
830.0 [m]	DC	OD
840.0 [m]	DC	OD
850.0 [m]	DC	OD
860.0 [m]	DC	OD
870.0 [m]	DC	OD
870.0 [m]	DC	
880.0 [m]	DC	OD
890.0 [m]	DC	OD
900.0 [m]	DC	OD
910.0 [m]	DC	OD
920.0 [m]	DC	OD
930.0 [m]	DC	OD
940.0 [m]	DC	OD



950.0 [m]	DC	OD
950.0 [m]	DC	PAS
960.0 [m]	DC	OD
960.0 [m]	DC	OD
970.0 [m]	DC	
970.0 [m]	DC	OD
980.0 [m]	DC	OD
990.0 [m]	DC	OD
1000.0 [m]	DC	OD
1010.0 [m]	DC	OD
1020.0 [m]	DC	OD
1030.0 [m]	DC	OD
1030.0 [m]	DC	PAS
1050.0 [m]	DC	PAS
1070.0 [m]	DC	PAS
1090.0 [m]	DC	PAS
1112.0 [m]	DC	PAS
1140.0 [m]	DC	PAS
1142.5 [m]	SWC	PAS
1170.0 [m]	DC	PAS
1170.0 [m]	DC	
1185.0 [m]	DC	PAS
1203.0 [m]	DC	PAS
1218.0 [m]	DC	PAS
1225.0 [m]	SWC	PAS
1233.0 [m]	DC	PAS
1248.0 [m]	DC	PAS
1263.0 [m]	DC	PAS
1275.0 [m]	SWC	PAS
1278.0 [m]	DC	PAS
1293.0 [m]	DC	PAS
1308.0 [m]	DC	PAS
1323.0 [m]	DC	PAS
1338.0 [m]	DC	PAS
1353.0 [m]	DC	PAS
1368.0 [m]	DC	PAS
1374.0 [m]	SWC	PAS
1383.0 [m]	DC	PAS
1398.0 [m]	DC	PAS
1400.0 [m]	SWC	PAS



1413.0 [m]	DC	PAS
1428.0 [m]	DC	PAS
1443.0 [m]	DC	PAS
1458.0 [m]	DC	PAS
1473.0 [m]	DC	PAS
1479.0 [m]	SWC	PAS
1491.0 [m]	DC	PAS
1503.0 [m]	DC	PAS
1518.0 [m]	DC	PAS
1533.0 [m]	DC	PAS
1548.0 [m]	DC	PAS
1563.0 [m]	DC	PAS
1578.0 [m]	DC	PAS
1579.0 [m]	DC	PAS
1593.0 [m]	DC	PAS
1595.5 [m]	SWC	PAS
1608.0 [m]	DC	PAS
1615.0 [m]	SWC	PAS
1623.0 [m]	DC	PAS
1629.0 [m]	DC	
1638.0 [m]	DC	PAS
1653.0 [m]	DC	PAS
1664.0 [m]	SWC	PAS
1668.0 [m]	DC	PAS
1683.0 [m]	DC	PAS
1688.0 [m]	SWC	PAS
1698.0 [m]	DC	PAS
1728.0 [m]	DC	PAS
1741.0 [m]	SWC	PAS
1743.0 [m]	DC	PAS
1749.0 [m]	DC	
1758.0 [m]	DC	PAS
1773.0 [m]	DC	PAS
1788.0 [m]	DC	PAS
1796.0 [m]	SWC	PAS
1818.0 [m]	DC	PAS
1833.0 [m]	DC	PAS
1837.0 [m]	SWC	PAS
1848.0 [m]	DC	PAS
1851.0 [m]	DC	



1865.0 [m]	SWC	PAS
1873.5 [m]	SWC	PAS
1878.0 [m]	DC	PAS
1893.0 [m]	DC	PAS
1908.0 [m]	DC	PAS
1923.0 [m]	DC	PAS
1927.0 [m]	SWC	PAS
1938.0 [m]	DC	PAS
1950.0 [m]	DC	
1954.0 [m]	SWC	PAS
1956.0 [m]	DC	OD
1971.0 [m]	DC	OD
1977.0 [m]	DC	OD
1986.0 [m]	DC	OD
1995.0 [m]	DC	OD
2001.0 [m]	DC	OD
2016.0 [m]	DC	OD
2031.0 [m]	DC	OD
2031.5 [m]	SWC	OD
2037.0 [m]	DC	OD
2043.0 [m]	DC	OD
2058.0 [m]	DC	OD
2061.0 [m]	DC	OD
2074.5 [m]	SWC	OD
2076.0 [m]	DC	OD
2079.0 [m]	DC	OD
2082.0 [m]	DC	OD
2085.0 [m]	DC	OD
2091.0 [m]	DC	OD
2096.0 [m]	C	OD
2099.0 [m]	C	OD
2099.5 [m]	C	OD
2102.0 [m]	C	OD
2113.3 [m]	C	OD
2124.0 [m]	C	OD
2138.5 [m]	C	OD
2141.0 [m]	C	OD
2149.0 [m]	DC	OD
2168.0 [m]	C	OD
2184.0 [m]	C	OD



2185.0 [m]	C	OD
2185.0 [m]	C	OD
2200.0 [m]	C	OD
2200.3 [m]	C	OD
2202.4 [m]	C	OD
2212.5 [m]	C	PAS
2216.0 [m]	DC	OD
2216.5 [m]	C	PAS
2219.0 [m]	DC	PAS
2225.0 [m]	DC	PAS
2237.0 [m]	DC	OD
2240.0 [m]	DC	PAS
2255.0 [m]	DC	PAS
2255.0 [m]	DC	OD
2260.0 [m]	SWC	PAS
2270.0 [m]	DC	PAS
2276.0 [m]	DC	OD
2285.0 [m]	DC	PAS
2294.0 [m]	DC	OD
2303.0 [m]	DC	PAS
2315.0 [m]	SWC	PAS
2315.0 [m]	DC	OD
2330.0 [m]	DC	PAS
2333.0 [m]	DC	OD
2345.0 [m]	DC	PAS
2354.0 [m]	DC	OD
2360.0 [m]	DC	PAS
2375.0 [m]	DC	PAS
2375.0 [m]	DC	OD
2390.0 [m]	DC	PAS
2393.0 [m]	DC	OD
2405.0 [m]	DC	PAS
2414.0 [m]	DC	OD
2420.0 [m]	DC	PAS
2435.0 [m]	DC	PAS
2438.0 [m]	DC	OD
2450.0 [m]	DC	PAS
2459.0 [m]	DC	OD
2465.0 [m]	DC	PAS
2480.0 [m]	DC	PAS



2480.0	[m]	DC	OD
2501.0	[m]	DC	OD
2510.0	[m]	DC	PAS
2522.0	[m]	DC	OD
2525.0	[m]	DC	PAS
2527.5	[m]	SWC	PAS
2540.0	[m]	DC	PAS
2543.0	[m]	DC	OD
2555.0	[m]	DC	PAS
2570.0	[m]	DC	PAS
2585.0	[m]	DC	OD
2588.0	[m]	DC	PAS

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	2092.00	2097.00		20.07.1982 - 17:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
270	NORDLAND GP
558	SOTBAKKEN GP
558	TORSK FM
877	NYGRUNNEN GP
877	KVEITE FM
961	ADVENTDALEN GP
961	KOLMULE FM
1552	KOLJE FM
1869	KNURR FM
1955	HEKKINGEN FM
2078	FUGLEN FM
2081	KAPP TOSCANA GP
2081	STØ FM
2190	NORDMELA FM
2375	TUBÅEN FM



2455 [FRUHOLMEN FM](#)

Composite logs

Document name	Document format	Document size [MB]
50	pdf	0.41

Geochemical information

Document name	Document format	Document size [MB]
50_1	pdf	1.56
50_2	pdf	4.84
50_3	pdf	0.28
50_4	pdf	7.99
50_5	pdf	1.91

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

Document name	Document format	Document size [MB]
50_01_WDSS_General_Information	pdf	0.18
50_02_WDSS_completion_log	pdf	0.20

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

Document name	Document format	Document size [MB]
50_01_Completion_Report	pdf	14.07
50_02_Completion_log	pdf	1.59

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2092	2097	17.5





Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0	10.000		17.000	72

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	17	470000	0.778	0.679	26880

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BGT GR	533	802
CAL GR	525	802
CAL GR	525	802
CAL GR	533	772
CBL	1520	2491
CBL	2050	2592
CBL VDL	270	772
CST	1105	1664
CST	1688	1962
CST	2031	2575
DLL MSFL GR	2050	2217
HDT	332	2592
ISF SONIC GR SP CAL	332	790
ISF SONIC GR SP CAL	1677	2592
ISF SONIC MSFL GR SP CAL	792	1684
LDT CNL GR CAL	1677	2592
LDT GR CAL	792	1682
RFT	1677	2221
VELOCITY	385	2590

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	332.0	36	333.0	0.00	LOT
SURF.COND.	20	735.0	26	752.0	0.00	LOT



INTERM.	13 3/8	792.0	17 1/2	800.0	1.65	LOT
INTERM.	9 5/8	1675.0	12 1/4	1682.0	1.72	LOT
LINER	7	2590.0	8 1/2	2590.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
333	1.05			spud mud	
750	1.10	49.0	40.0	water based	
802	1.20	45.0	14.0	water based	
1682	1.45	48.0	14.0	water based	
2085	1.45	48.0	21.0	water based	
2218	1.45	50.0	13.0	water based	
2590	1.45	52.0	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]
50_Formalion_pressure_(Formasjonstrykk)	pdf	0.27

