

**General information**

Wellbore name	7122/6-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	BARENTS SEA
Field	SNØHVIT
Discovery	7122/6-1 (Tornerose)
Well name	7122/6-1
Seismic location	FWGS 84-314 SP.1658/TO 8514-04 SP.293.2
Production licence	138
Drilling operator	Total Norge AS
Drill permit	559-L
Drilling facility	POLAR PIONEER
Drilling days	67
Entered date	06.09.1987
Completed date	11.11.1987
Release date	11.11.1989
Publication date	18.05.2004
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS
Discovery wellbore	YES
1st level with HC, age	EARLY JURASSIC
1st level with HC, formation	STØ FM
2nd level with HC, age	LATE TRIASSIC
2nd level with HC, formation	SNADD FM
Kelly bushing elevation [m]	23.0
Water depth [m]	401.0
Total depth (MD) [m RKB]	2707.0
Final vertical depth (TVD) [m RKB]	2707.0
Maximum inclination [°]	4.8
Bottom hole temperature [°C]	89
Oldest penetrated age	MIDDLE TRIASSIC
Oldest penetrated formation	SNADD FM
Geodetic datum	ED50
NS degrees	71° 38' 19.32" N



EW degrees	22° 48' 42.8" E
NS UTM [m]	7949804.84
EW UTM [m]	563698.43
UTM zone	34
NPDID wellbore	1140

Wellbore history



General

Wildcat well 7122/6-1 was designed to drill a prospect located in the central part of the block, located in the eastern part of the Hammerfest Basin. The purpose of well 7122/6-1 was to test the hydrocarbon potential of the Middle Jurassic to Upper Triassic sandstones in the main structure of the block.

Operations and results

Wildcat well 7122/6-1 was spudded with Polar Frontier Drilling semi-submersible installation Polar Pioneer on 6 September 1987 and drilled to TD at 2707 m in the Middle - Late Triassic Snadd Formation.

The structure penetrated by the well is a large tilted block dipping southwards. The northern closure is a major WNW-ESE fault. Top of the main markers were encountered higher than prognosed: top Stø Formation came in 71 m higher, and top Trias came in 183 m higher than expected. The Jurassic reservoirs were found water bearing, however, some oil recovered by RFT indicated the presence of a thin (1.5 m) oil zone at the top of the Stø formation. The late Triassic Snadd Formation proved gas and condensate in a 71.5 m gross thickness reservoir. Weak shows were recorded in cuttings from the Hekkingen shale. Strong whitish yellow direct fluorescence was observed in the cored sandstones all through the Stø Formation down to 2040 m. Weak shows were recorded on the cored sandstones in the Nordmela, Tubåen, and Fruholmen Formations. Below this level, in the Triassic section, weak oil shows were recorded in sandstones, including the reservoir section between 2400 to 2450 m that produced gas and condensate in the DST.

A very dense geochemical screening in this well showed only very lean source rocks (< 1% TOC) above 1340 m. Between 1340 m and 1931 m, the average TOC is around 1% with a somewhat richer interval between 1750 m and 1900 m (TOC 1.5 to 3%), but with HI generally lower than 100 mg/g. Between 1931 m and 2015 m, high organic content (TOC 10 to 15%) and high HI (280 - 350 mg/g) indicate a very good source rock in the Hekkingen Formation. Between 2040 m to 2099 m) high TOC values are related to coal beds or organic shales (Nordmela and Tubåen formations). From 2100 m to 2710 m (TD), TOC was generally low, but with some moderately good intervals such as 2100 m - 2150 m (up to 3%). The HI was generally < 100 mg/g with some intervals at 100 - 150 mg/g. Thus, this section presents a low source rock potential. The vitrinite Ro and Tmax indicate that the well enters the oil window at around 2000-2100 m, just where the best source rock is found (Ro = 0.6% and Tmax = 435°C).

Four cores were cut in the interval from 2019 m to 2099 m in the Stø, Nordmela, Tubåen, and Fruholmen Formations. A total of eleven RFT fluid samples were taken below 2015 m in the Jurassic and Triassic sections. The sample at 2015.8 m contained a small amount of condensate (0.5 cm³), while the sample at 2425 m contained a good quantity of condensate (600 cm³) with density 0.752 g/cm³. The other samples recovered various compositions of mud filtrate, water, and gas.

Well 7122/6-1 was permanently abandoned on 11 November 1987 as a gas and condensate discovery.

Testing

Two DST's were performed in the Late Triassic reservoirs (Snadd Formation). DST1 perforated 2439.5 m to 2449 m and gave no flow. DST2 perforated 2424 m to 2434 m. During this test the well flowed gas and condensate with flow rates ranging from 530 000 to 567 000 Sm³/d of gas and 73 to 66 Sm³/D condensate through a 17.5 mm choke. GOR varied from 7377 Sm³/Sm³ to 8558 Sm³/Sm³.



Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
800.00	2710.00

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	2019.0	2039.2	[m]
2	2039.2	2063.9	[m]
3	2064.0	2086.9	[m]
4	2087.0	2098.7	[m]

Total core sample length [m]	79.5
Cores available for sampling?	YES

Core photos



2019-2023m



2024-2028m



2029-2033m



2034-2038m



2039-2039m



2039-2043m



2044-2048m



2049-2053m



2054-2058m



2059-2063m



2064-2068m



2069-2073m



2074-2078m



2079-2083m



2084-2086m



2087-2091m



2092-2098m



2097-2098m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
744.2	[m]	C	C.F.P
744.4	[m]	C	C.F.P
758.4	[m]	C	C.F.P
760.1	[m]	C	C.F.P
764.9	[m]	C	C.F.P
765.2	[m]	C	C.F.P
767.7	[m]	C	C.F.P
768.0	[m]	C	C.F.P
771.4	[m]	C	C.F.P
775.0	[m]	C	C.F.P
780.0	[m]	C	C.F.P
785.0	[m]	C	C.F.P
790.0	[m]	C	C.F.P
795.0	[m]	C	C.F.P
900.0	[m]	C	C.F.P
1100.0	[m]	C	C.F.P
1300.0	[m]	C	C.F.P
1500.0	[m]	C	C.F.P
1700.0	[m]	C	C.F.P
1740.0	[m]	C	C.F.P
1875.0	[m]	C	C.F.P
1930.0	[m]	C	C.F.P
1952.5	[m]	C	C.F.P
1972.0	[m]	C	C.F.P
1972.5	[m]	C	C.F.P
1979.0	[m]	C	C.F.P
1985.5	[m]	C	C.F.P
1990.0	[m]	C	C.F.P
1992.5	[m]	C	C.F.P



2001.5	[m]	C	C.F.P
2002.0	[m]	C	C.F.P
2006.0	[m]	C	C.F.P
2008.0	[m]	C	C.F.P
2011.0	[m]	C	C.F.P
2013.0	[m]	C	C.F.P
2014.0	[m]	C	C.F.P
2038.1	[m]	C	OD
2039.0	[m]	C	C.F.P
2039.2	[m]	C	OD
2039.3	[m]	C	C.F.P
2041.4	[m]	C	OD
2041.4	[m]	C	C.F.P
2044.2	[m]	C	OD
2046.5	[m]	C	C.F.P
2047.8	[m]	C	OD
2048.6	[m]	C	C.F.P
2049.9	[m]	C	ICHRON
2050.8	[m]	C	C.F.P
2054.0	[m]	C	C.F.P
2062.9	[m]	C	ICHRON
2063.0	[m]	C	C.F.P
2064.0	[m]	C	C.F.P
2068.8	[m]	C	C.F.P
2069.5	[m]	C	C.F.P
2072.8	[m]	C	C.F.P
2073.6	[m]	C	C.F.P
2076.3	[m]	C	C.F.P
2078.0	[m]	C	C.F.P
2079.0	[m]	C	C.F.P
2083.4	[m]	C	C.F.P
2083.8	[m]	C	C.F.P
2086.8	[m]	C	C.F.P
2089.5	[m]	C	C.F.P
2092.3	[m]	C	C.F.P
2093.0	[m]	C	C.F.P
2097.0	[m]	C	C.F.P
2098.5	[m]	C	C.F.P
2103.0	[m]	C	C.F.P
2125.0	[m]	C	C.F.P



2131.0	[m]	C	C.F.P
2146.0	[m]	C	C.F.P
2147.5	[m]	C	C.F.P
2200.0	[m]	C	C.F.P
2228.0	[m]	C	C.F.P
2242.0	[m]	C	C.F.P
2314.0	[m]	C	C.F.P
2341.0	[m]	C	C.F.P
2371.0	[m]	C	C.F.P
2461.0	[m]	C	C.F.P
2467.0	[m]	DC	OD
2473.0	[m]	C	C.F.P
2500.0	[m]	C	C.F.P
2545.0	[m]	C	C.F.P
2574.5	[m]	C	C.F.P
2587.5	[m]	C	C.F.P
2595.0	[m]	C	C.F.P
2603.0	[m]	C	C.F.P
2611.0	[m]	C	C.F.P
2617.5	[m]	C	C.F.P
2626.5	[m]	C	C.F.P
2651.0	[m]	C	C.F.P
2655.5	[m]	C	C.F.P
2657.5	[m]	C	C.F.P
2658.0	[m]	C	C.F.P
2662.0	[m]	C	C.F.P
2671.5	[m]	C	C.F.P
2678.0	[m]	C	C.F.P

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		2424.00	2434.00		03.11.1987 - 00:00	YES

Lithostratigraphy



Top depth [mMD RKB]	Lithostrat. unit
424	NORDLAND GP
547	SOTBAKKEN GP
547	TORSK FM
759	NYGRUNNEN GP
759	KVEITE FM
916	ADVENTDALEN GP
916	KOLMULE FM
1649	KOLJE FM
1884	KNURR FM
1931	HEKKINGEN FM
2015	KAPP TOSCANA GP
2015	STØ FM
2038	NORDMELA FM
2052	TUBÅEN FM
2063	FRUHOLMEN FM
2191	SNADD FM

Composite logs

Document name	Document format	Document size [MB]
1140	pdf	0.42

Geochemical information

Document name	Document format	Document size [MB]
1140_1	pdf	4.88
1140_2	pdf	2.12

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

Document name	Document format	Document size [MB]
1140_01_WDSS_General_Information	pdf	0.43
1140_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]
1140_7122_6_1_COMPLETION_REPORT_AND_LOG	pdf	12.06

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.1	2449	2439	0.0
2.2	2434	2424	17.4

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.1			20.500	73
2.2	25.000	21.000	28.000	79

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.1					
2.2	69	579393	0.749	0.680	8397

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL	600	1853
CST	485	798
CST	783	1840
CST	1887	2700
DIS LSS GR	485	794
DIS LSS GR	781	1841
DITE BHC GR	1860	2497
DITE GR	1860	2269
DITE GR	2450	2703
DLL BHC MSFL	1860	2701
LDL CNL GR	1860	2253





LDL CNL SGR	1860	2481
LDL CNL SGR	2450	2696
LDL GR	485	773
LDL GR	781	1823
MWD	424	2710
RFT	2012	2231
RFT	2186	2448
RFT	2433	2654
SHDT GR	781	1845
SHDT GR	1860	2490
SHDT GR	2475	2705
VSP	700	2497

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	485.0	36	489.0	1.03	LOT
SURF.COND.	20	783.0	26	928.0	1.47	LOT
INTERM.	13 3/8	1860.0	17 1/2	1875.0	0.00	LOT
OPEN HOLE		2707.0	12 1/4	2707.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
424	1.03			WATER BASED	12.11.1987
450	1.03	4.0	7.6	WATER BASED	09.09.1987
486	0.00	3.0	6.0	WATER BASED	09.09.1987
489	1.03			WATER BASED	10.09.1987
798	1.03			WATER BASED	11.09.1987
798	1.03			WATER BASED	18.09.1987
928	1.12	21.0	12.4	WATER BASED	18.09.1987
1148	1.12	8.7	10.0	WATER BASED	18.09.1987
1279	1.12	8.6	10.0	WATER BASED	18.09.1987
1435	1.13	20.0	8.5	WATER BASED	18.09.1987
1524	1.13	21.0	8.6	WATER BASED	22.09.1987
1639	1.13	21.0	8.6	WATER BASED	22.09.1987
1730	1.14	20.0	8.6	WATER BASED	22.09.1987



1761	1.14	21.0	8.6	WATER BASED	22.09.1987
1875	1.20	22.0	8.6	WATER BASED	28.09.1987
1875	1.18	21.0	7.7	WATER BASED	23.09.1987
1875	1.28	20.0	7.1	WATER BASED	24.09.1987
1875	1.28	21.0	7.2	WATER BASED	25.09.1987
1875	1.28	21.0	7.6	WATER BASED	28.09.1987
1891	1.20	23.0	9.1	WATER BASED	28.09.1987
2019	1.25	23.0	7.6	WATER BASED	29.09.1987
2019	1.30	24.0	10.0	WATER BASED	30.09.1987
2039	1.30	23.0	10.0	WATER BASED	02.10.1987
2064	1.30	26.0	19.0	WATER BASED	02.10.1987
2080	1.31	25.0	11.0	WATER BASED	05.10.1987
2087	1.31	26.0	10.0	WATER BASED	05.10.1987
2098	1.31	24.0	10.0	WATER BASED	05.10.1987
2137	1.31	22.0	13.0	WATER BASED	07.10.1987
2164	1.31	20.0	12.4	WATER BASED	07.10.1987
2218	1.31	28.0	12.0	WATER BASED	08.10.1987
2264	1.31	25.0	14.4	WATER BASED	09.10.1987
2373	1.31	25.0	12.4	WATER BASED	14.10.1987
2417	1.31	25.0	12.0	WATER BASED	16.10.1987
2437	1.20	13.0	6.0	WATER BASED	03.11.1987
2469	1.00	13.0	5.5	WATER BASED	30.10.1987
2471	1.20	19.0	6.5	WATER BASED	29.10.1987
2488	1.31	25.0	12.0	WATER BASED	19.10.1987
2500	1.31	25.0	11.0	WATER BASED	19.10.1987
2500	1.31	25.0	11.0	WATER BASED	20.10.1987
2514	1.32	21.0	11.0	WATER BASED	20.10.1987
2575	1.30	20.0	11.5	WATER BASED	21.10.1987
2624	1.30	23.0	11.0	WATER BASED	22.10.1987
2680	1.30	20.0	12.5	WATER BASED	23.10.1987
2710	1.30	23.0	15.3	WATER BASED	26.10.1987
2710	1.30	18.0	9.5	WATER BASED	27.10.1987
2710	1.30	14.0	10.5	WATER BASED	28.10.1987
2710	1.20	14.0	6.5	WATER BASED	04.11.1987
2710	1.20	12.0	5.5	WATER BASED	05.11.1987
2710	1.20	16.0	4.7	WATER BASED	06.11.1987
2710	1.30	18.0	4.7	WATER BASED	09.11.1987
2710	1.20	14.0	6.5	WATER BASED	02.11.1987
2710	1.20	13.0	6.0	WATER BASED	02.11.1987

**Thin sections at the Norwegian Offshore Directorate**

Depth	Unit
2020.25	[m]
2023.75	[m]
2030.00	[m]
2037.75	[m]
2041.50	[m]
2052.50	[m]
2082.55	[m]
2092.75	[m]
2019.00	[m]
2023.00	[m]
2029.25	[m]
2034.50	[m]
2037.50	[m]
2040.75	[m]
2044.75	[m]
2051.25	[m]
2057.00	[m]
2060.25	[m]

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]
1140 Formation pressure (Formasjonstrykk)	pdf	0.28

