

**General information**

Wellbore name	7220/7-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	BARENTS SEA
Field	JOHAN CASTBERG
Discovery	7220/7-1 (Havis)
Well name	7220/7-1
Seismic location	3D survey WG 08STR10 inline 1302 & xline 3123
Production licence	532
Drilling operator	Statoil Petroleum AS
Drill permit	1389-L
Drilling facility	TRANSOCEAN BARENTS
Drilling days	51
Entered date	05.12.2011
Completed date	24.01.2012
Release date	24.01.2014
Publication date	11.04.2014
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL/GAS
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	STØ FM
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	NORDMELA FM
Kelly bushing elevation [m]	40.0
Water depth [m]	365.0
Total depth (MD) [m RKB]	2230.0
Final vertical depth (TVD) [m RKB]	2229.0
Maximum inclination [°]	6
Bottom hole temperature [°C]	72
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	FRUHOLMEN FM
Geodetic datum	ED50



NS degrees	72° 27' 37.53" N
EW degrees	20° 9' 8.59" E
NS UTM [m]	8047938.73
EW UTM [m]	673127.84
UTM zone	33
NPDID wellbore	6756

Wellbore history

**General**

Well 7220/7-1 was drilled southwest of the 7220/8-1 Skrugard discovery and west of the Loppa High in the Barents Sea. The targeted Havis fault block is one of several rotated fault blocks in the licence, and a part of the Bjørnøyrenna Fault Complex. The primary objective was to test the hydrocarbon potential in the Stø, Nordmela and Tubåen Formations, all of Jurassic age. Secondary objectives were to test the presence and quality of sandstones in the lower Triassic Fruholmen Formation, as well as to collect data needed for field development purposes. A clear flat event was observed in the seismic at 1960 m. Seismic data also indicated flat events at 1830 m and 2105 m.

Operations and results

A pilot hole was drilled on the spud location with seawater and returns to seafloor down to 1050 m (the planned setting depth for 13 3/8" casing). No shallow gas was encountered. Well 7220/7-1 was spudded with the semi-submersible installation Transocean Barents on 5 December 2011 and drilled to TD at 2230 m in the Late Triassic Fruholmen Formation. No significant problem was encountered in the operations. The well was drilled with seawater and hi-vis/bentonite sweeps down to 1060 m, with KCl/GEM/polymer mud from 1060 m to 1746 m, and with low sulphate KCl/GEM/polymer mud from 1746 m to TD.

Well 7220/7-1 penetrated sediments ranging in age from Recent to Triassic. Below the glacio-marine Quaternary section at 485 m, an 831 m thick Tertiary sequence and a 424 m thick Cretaceous sequence were drilled to Top Jurassic (Fuglen Formation) at 1740 m. Top of target reservoir Stø Formation was encountered at 1781 m. The reservoir was gas bearing to the gas-oil-contact (GOC) at 1828 m, and oil bearing to the oil-water-contact (OWC) at 1956 m. Residual hydrocarbons was encountered below the OWC down to approximately 2121 m. No shows were recorded below this depth or above top reservoir. Results from the well thus indicate that flat-events seen on seismic at 1820 m and 1960 m, and 2105 m represent the GOC, the OWC, and a paleo-OWC, respectively. The Fruholmen Formation was penetrated at 2130 m, which was 7 m shallower than prognosed.

Two short cores were cut in the overburden in the Kolmule and Kolje formations for field development purposes. A further seven cores were cut from 1785.5 m to 2120.5 m in the Stø, Nordmela and Tubåen Formations, covering the hydrocarbon zone and the water zone below, which is expected to be hydrocarbon-bearing up-flank on the structure. The core depths were ca 1 - 2 m deeper than the logger depths for all cores. Extensive wire line logging was performed. MDT fluid samples were taken at 1793 m (gas), 1837 m (oil), 1894 m (oil), 1927 m (oil), 1971 m (water), and 2063 m (water).

The well was permanently abandoned on 24 January 2012 as an oil and gas discovery.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1070.00	2231.00

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
3	1785.5	1813.2	[m]
4	1831.2	1868.3	[m]
5	1868.3	1922.4	[m]
6	1922.4	1967.9	[m]
7	1969.0	2024.4	[m]
8	2024.4	2077.6	[m]
9	2077.6	2121.7	[m]

Total core sample length [m]	317.1
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1070.0	[m]	DC	FUGRO
1080.0	[m]	DC	FUGRO
1090.0	[m]	DC	FUGRO
1100.0	[m]	DC	FUGRO
1110.0	[m]	DC	FUGRO
1120.0	[m]	DC	FUGRO
1130.0	[m]	DC	FUGRO
1140.0	[m]	DC	FUGRO
1150.0	[m]	DC	FUGRO
1160.0	[m]	DC	FUGRO
1170.0	[m]	DC	FUGRO
1180.0	[m]	DC	FUGRO
1190.0	[m]	DC	FUGRO
1200.0	[m]	DC	FUGRO
1210.0	[m]	DC	FUGRO
1220.0	[m]	DC	FUGRO
1230.0	[m]	DC	FUGRO
1240.0	[m]	DC	FUGRO
1250.0	[m]	DC	FUGRO
1260.0	[m]	DC	FUGRO
1270.0	[m]	DC	FUGRO
1280.0	[m]	DC	FUGRO



1290.0 [m]	DC	FUGRO
1300.0 [m]	DC	FUGRO
1320.0 [m]	DC	FUGRO
1330.0 [m]	DC	FUGRO
1340.0 [m]	DC	FUGRO
1350.0 [m]	DC	FUGRO
1360.0 [m]	DC	FUGRO
1370.0 [m]	DC	FUGRO
1380.0 [m]	DC	FUGRO
1390.0 [m]	DC	FUGRO
1400.0 [m]	DC	FUGRO
1410.0 [m]	DC	FUGRO
1420.0 [m]	DC	FUGRO
1430.0 [m]	DC	FUGRO
1440.0 [m]	DC	FUGRO
1450.0 [m]	DC	FUGRO
1460.0 [m]	DC	FUGRO
1470.0 [m]	DC	FUGRO
1480.0 [m]	DC	FUGRO
1490.0 [m]	DC	FUGRO
1500.0 [m]	DC	FUGRO
1510.0 [m]	DC	FUGRO
1520.0 [m]	DC	FUGRO
1530.0 [m]	DC	FUGRO
1550.0 [m]	DC	FUGRO
1560.0 [m]	DC	FUGRO
1570.0 [m]	DC	FUGRO
1580.0 [m]	DC	FUGRO
1590.0 [m]	DC	FUGRO
1600.0 [m]	DC	FUGRO
1610.0 [m]	DC	FUGRO
1615.0 [m]	CC	FUGRO
1616.0 [m]	CC	FUGRO
1630.0 [m]	DC	FUGRO
1640.0 [m]	DC	FUGRO
1650.0 [m]	DC	FUGRO
1660.0 [m]	DC	FUGRO
1670.0 [m]	DC	FUGRO
1680.0 [m]	DC	FUGRO
1690.0 [m]	DC	FUGRO



1700.0 [m]	DC	FUGRO
1710.0 [m]	DC	FUGRO
1720.0 [m]	DC	FUGRO
1722.0 [m]	CC	FUGRO
1725.9 [m]	CC	FUGRO
1730.0 [m]	DC	FUGRO
1740.0 [m]	DC	FUGRO
1748.0 [m]	DC	FUGRO
1751.0 [m]	DC	FUGRO
1754.0 [m]	DC	FUGRO
1757.0 [m]	DC	FUGRO
1760.0 [m]	DC	FUGRO
1763.0 [m]	DC	FUGRO
1766.0 [m]	DC	FUGRO
1769.0 [m]	DC	FUGRO
1772.0 [m]	DC	FUGRO
1775.0 [m]	DC	FUGRO
1778.0 [m]	DC	FUGRO
1781.0 [m]	DC	FUGRO
1784.0 [m]	DC	FUGRO
1785.8 [m]	CC	FUGRO
1788.9 [m]	CC	FUGRO
1791.9 [m]	CC	FUGRO
1793.0 [m]	CC	FUGRO
1797.0 [m]	CC	FUGRO
1800.9 [m]	CC	FUGRO
1804.0 [m]	CC	FUGRO
1806.9 [m]	CC	FUGRO
1809.5 [m]	CC	FUGRO
1812.7 [m]	CC	FUGRO
1813.9 [m]	CC	FUGRO
1816.9 [m]	CC	FUGRO
1819.3 [m]	CC	FUGRO
1822.2 [m]	CC	FUGRO
1825.6 [m]	CC	FUGRO
1828.7 [m]	CC	FUGRO
1831.6 [m]	CC	FUGRO
1834.9 [m]	CC	FUGRO
1837.4 [m]	CC	FUGRO
1840.4 [m]	CC	FUGRO



1843.8	[m]	CC	FUGRO
1846.8	[m]	CC	FUGRO
1849.8	[m]	CC	FUGRO
1852.9	[m]	CC	FUGRO
1855.9	[m]	CC	FUGRO
1858.4	[m]	CC	FUGRO
1862.5	[m]	CC	FUGRO
1865.6	[m]	CC	FUGRO
1868.6	[m]	CC	FUGRO
1871.9	[m]	CC	FUGRO
1874.9	[m]	CC	FUGRO
1877.9	[m]	CC	FUGRO
1878.3	[m]	CC	FUGRO
1882.0	[m]	CC	FUGRO
1884.9	[m]	CC	FUGRO
1887.6	[m]	CC	FUGRO
1891.6	[m]	CC	FUGRO
1893.9	[m]	CC	FUGRO
1897.6	[m]	CC	FUGRO
1900.9	[m]	CC	FUGRO
1904.0	[m]	CC	FUGRO
1910.0	[m]	CC	FUGRO
1914.8	[m]	CC	FUGRO
1918.5	[m]	CC	FUGRO
1921.7	[m]	CC	FUGRO
1923.7	[m]	CC	FUGRO
1928.0	[m]	CC	FUGRO
1934.0	[m]	CC	FUGRO
1940.8	[m]	CC	FUGRO
1945.2	[m]	CC	FUGRO
1951.7	[m]	CC	FUGRO
1957.7	[m]	CC	FUGRO
1963.5	[m]	CC	FUGRO
1969.9	[m]	CC	FUGRO
1975.7	[m]	CC	FUGRO
1981.6	[m]	CC	FUGRO
1987.7	[m]	CC	FUGRO
1993.8	[m]	CC	FUGRO
1999.3	[m]	CC	FUGRO
2004.7	[m]	CC	FUGRO



2006.9	[m]	CC	FUGRO
2013.0	[m]	CC	FUGRO
2018.9	[m]	CC	FUGRO
2024.3	[m]	CC	FUGRO
2030.8	[m]	CC	FUGRO
2036.9	[m]	CC	FUGRO
2042.9	[m]	CC	FUGRO
2047.4	[m]	CC	FUGRO
2055.6	[m]	CC	FUGRO
2057.5	[m]	CC	FUGRO
2061.6	[m]	CC	FUGRO
2068.0	[m]	CC	FUGRO
2072.7	[m]	CC	FUGRO
2079.6	[m]	CC	FUGRO
2087.6	[m]	CC	FUGRO
2089.8	[m]	CC	FUGRO
2096.4	[m]	CC	FUGRO
2100.4	[m]	CC	FUGRO
2108.9	[m]	CC	FUGRO
2115.7	[m]	CC	FUGRO
2121.2	[m]	CC	FUGRO
2123.0	[m]	DC	FUGRO
2129.0	[m]	DC	FUGRO
2135.0	[m]	DC	FUGRO
2141.0	[m]	DC	FUGRO
2147.0	[m]	DC	FUGRO
2153.0	[m]	DC	FUGRO
2159.0	[m]	DC	FUGRO
2165.0	[m]	DC	FUGRO
2174.0	[m]	DC	FUGRO
2177.0	[m]	DC	FUGRO
2183.0	[m]	DC	FUGRO
2189.0	[m]	DC	FUGRO
2195.0	[m]	DC	FUGRO
2201.0	[m]	DC	FUGRO
2207.0	[m]	DC	FUGRO
2213.0	[m]	DC	FUGRO
2219.0	[m]	DC	FUGRO
2225.0	[m]	DC	FUGRO
2231.0	[m]	DC	FUGRO

**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
MDT		1894.00	0.00	OIL		YES
MDT		1793.00	0.00	OIL	11.01.2012 - 00:00	YES
MDT		1793.00	0.00	OIL	11.01.2012 - 00:00	NO

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
405	NORDLAND GP
485	SOTBAKKEN GP
485	TORSK FM
1316	ADVENTDALEN GP
1316	KOLMULE FM
1710	KOLJE FM
1732	KNURR FM
1740	FUGLEN FM
1781	KAPP TOSCANA GP
1781	STØ FM
1857	NORDMELA FM
2023	TUBÅEN FM
2130	FRUHOLMEN FM

Logs

Log type	Log top depth [m]	Log bottom depth [m]
FMI ECS HNGS GR	935	1746
MWD - GVR6 PERI TELE	1746	1784
MWD - PENSOCPE TELE	1784	1969
XPT HRLA PEX	1747	2076
ZAIS MSIP PEX	865	1720

**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	468.0	36	470.0	0.00	LOT
SURF.COND.	13 3/8	1042.0	17 1/2	1065.0	1.24	LOT
INTERM.	9 5/8	1747.0	12 1/4	1748.0	1.87	LOT
OPEN HOLE		2230.0	8 1/2	2230.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
1058	1.15	14.0		KCl/Polymer/Glycol	
1119	1.15	13.0		KCl/Polymer/Glycol	
1228	1.16	23.0		KCl/Polymer/Glycol	
1380	1.16	15.0		KCl/Polymer/Glycol	
1550	1.39	13.0		Spud Mud	
1550	1.35	13.0		Seawater	
1615	1.16	13.0		KCl/Polymer/Glycol	
1622	1.16	17.0		KCl/Polymer/Glycol	
1748	1.16	14.0		KCl/Polymer/Glycol	

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]
6756 Formation pressure (Formasjonstrykk)	PDF	0.28

