General information

Wellbore name	7120/2-3 S
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	BARENTS SEA
Discovery	7120/2-3 S (Skalle)
Well name	7120/2-3
Seismic location	LN10M03-inline 14484 & crossline 12293
Production licence	438
Drilling operator	Lundin Norway AS
Drill permit	1353-L
Drilling facility	TRANSOCEAN LEADER
Drilling days	56
Entered date	15.05.2011
Completed date	09.07.2011
Release date	09.07.2013
Publication date	10.08.2013
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS
Discovery wellbore	YES
1st level with HC, age	EARLY CRETACEOUS
1st level with HC, formation	KOLMULE FM
2nd level with HC, age	EARLY CRETACEOUS
2nd level with HC, formation	KNURR FM
3rd level with HC, age	MIDDLE JURASSIC
3rd level with HC, formation	STØ FM
Kelly bushing elevation [m]	23.5
Water depth [m]	312.0
Total depth (MD) [m RKB]	2625.0
Final vertical depth (TVD) [m RKB]	2620.0
Maximum inclination [°]	5.3
Bottom hole temperature [°C]	93
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	SNADD FM
Geodetic datum	ED50

NS degrees	71° 47' 20.97'' N
EW degrees	20° 21' 44.23'' E
NS UTM [m]	7965749.13
EW UTM [m]	477755.39
UTM zone	34
NPDID wellbore	6592

Wellbore history

General

The 7120/2-3 S well was drilled on the Skalle prospect north-west of the Snøhvit Field at a location between the Loppa High to the north and the Hammerfest Basin south. The objective was to explore the reservoir potential of the Mesozoic succession, with sandstones of the Kolmule and Stø Formations as the primary target.

Operations and results

A 9 7/8" pilot hole, named 7120/2-U-1 was drilled to 655 m to check for shallow gas. None was encountered. Wildcat well 7120/2-3 was spudded with the semi-submersible installation Transocean Leader on 15 May 2011 and drilled to TD at 2625 m (2620 m TVD) in the Late Triassic Snadd Formation. No significant problem was encountered in the operations. The well was drilled with seawater and sweeps down to 650 m and with KCL/polymer/GEM mud from 650 m to TD. In the 17 1/2" section from 650 m to 1522 m mud from the recent 7220/8-1 Skrugard well was re-used in this well. This mud proved to contain oil that made shows evaluation difficult and was replaced before drilling the next section.

The well encountered hydrocarbons at three stratigraphic levels; a gas column from 1576 m to a free gas-water contact at 1639.4 m in the Early Cretaceous Kolmule Formation, gas in a down-to situation in the Early Cretaceous Knurr Formation, and a gas column from 2071 m to a free gas-water contact at 2095.9 m in the Early to Middle Jurassic, Stø Formation. The Kolmule reservoir had a gross thickness of 150 m, consisting of several sandstone bodies with reservoir facies ranging from shallow marine sandstones to conglomerates and homogenous slope turbidites. The Knurr Formation reservoir was a 5 m thick partly carbonate cemented sandstone resting on the Hekkingen Formation. The Stø reservoir consisted of 149 m thick, clean sandstone. Water bearing sandstone reservoirs were also present in the Tubåen, Fruholmen, and Snadd formation. The reservoir quality in the sandstones from Stø level and down was affected by quartz diagenesis. Due to interference from the mud system oil shows were difficult. However minor oil shows were recorded in intervals on the cores from all three gas bearing reservoir sections. In addition, above average gas levels (3 to 3.5 % Total Gas) were observed through the upper Nordmela Formation in the interval from 2220 to 2255 m, and these had a high level of heavy components.

A total of 9 conventional cores were cut, 4 from 1583 to 1639 m in the Kolmule Formation sandstone, 2 from 2002 m to 2025 m in the Hekkingen and Fuglen Formations, and 3 from 2074.8 m to 2170 m in the Stø Formation sandstones. Depth shifts to match with logs were -2.3 m for the cores 1 to 4, -2.9 to -4.0 m for cores 5 and 6, +0.45 m for core 7, and no shift for cores 8 and 9. MDT fluid samples were taken at 1585.5 m (gas) and 1635 (gas) m, and 1664.8 m (water) in the Kolmule Formation, 1998.9 m (gas) in the lower Knurr Formation, 2079 m (gas) in the Stø Formation, and 2139 m (water) in the Stø Formation.

The well was permanently abandoned on 9 July 2011 as a 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]
660.00	2625.00

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	1583.0	1595.7	[m]
2	1596.0	1611.0	[m]
3	1612.1	1627.5	[m]
4	1628.0	1638.6	[m]
5	2002.0	2016.4	[m]
6	2016.5	2024.7	[m]
7	2074.8	2101.2	[m]
8	2101.8	2157.3	[m]
9	2156.0	2169.0	[m]

Total core sample length [m]	171.1
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
660.0	[m]	DC	ROBERT
700.0	[m]	DC	ROBERT
740.0	[m]	DC	ROBERT
780.0	[m]	DC	ROBERT
820.0	[m]	DC	ROBERT
860.0	[m]	DC	ROBERT
900.0	[m]	DC	ROBERT
940.0	[m]	DC	ROBERT
980.0	[m]	DC	ROBERT
1020.0	[m]	DC	ROBERT
1060.0	[m]	DC	ROBERT
1100.0	[m]	DC	ROBERT
1140.0	[m]	DC	ROBERT
1180.0	[m]	DC	ROBERT
1220.0	[m]	DC	ROBERT
1260.0	[m]	DC	ROBERT
1300.0	[m]	DC	ROBERT
1340.0	[m]	DC	ROBERT

1380.0	[m]	DC	ROBERT
1420.0	[m]	DC	ROBERT
1430.0	[m]	DC	ROBERT
1440.0	[m]	DC	ROBERT
1450.0	[m]	DC	ROBERT
1460.0	[m]	DC	ROBERT
1470.0	[m]	DC	ROBERT
1480.0	[m]	DC	ROBERT
1490.0	[m]	DC	ROBERT
1500.0	[m]	DC	ROBERT
1510.0	[m]	DC	ROBERT
1520.0	[m]	DC	ROBERT
1530.0	[m]	DC	ROBERT
1540.0	[m]	DC	ROBERT
1550.0	[m]	DC	ROBERT
1560.0	[m]	DC	ROBERT
1570.0	[m]	DC	ROBERT
1583.4	[m]	C	ROBERT
1584.7	[m]	C	ROBERT
1585.3	[m]	C	ROBERT
1587.5	[m]	C	ROBERT
1589.5	[m]	C	ROBERT
1590.3	[m]	C	ROBERT
1590.7	[m]	C	ROBERT
1592.3	[m]	C	ROBERT
1595.4	[m]	C	ROBERT
1596.7	[m]	C	ROBERT
1598.6	[m]	C	ROBERT
1599.5	[m]	C	ROBERT
1601.4	[m]	C	ROBERT
1603.7	[m]	C	ROBERT
1604.4	[m]	C	ROBERT
1605.6	[m]	C	ROBERT
1606.7	[m]	C	ROBERT
1608.7	[m]	C	ROBERT
1610.7	[m]	C	ROBERT
1613.5	[m]	C	ROBERT
1616.3	[m]	C	ROBERT
1616.5	[m]	C	ROBERT
1620.3	[m]	C	ROBERT

1621.6	[m]	C	ROBERT
1622.2	[m]	C	ROBERT
1623.7	[m]	C	ROBERT
1624.5	[m]	C	ROBERT
1625.9	[m]	C	ROBERT
1626.4	[m]	C	ROBERT
1627.3	[m]	C	ROBERT
1628.9	[m]	C	ROBERT
1629.8	[m]	C	ROBERT
1630.0	[m]	C	ROBERT
1632.1	[m]	C	ROBERT
1633.8	[m]	C	ROBERT
1634.4	[m]	C	ROBERT
1635.1	[m]	C	ROBERT
1635.9	[m]	C	ROBERT
1636.6	[m]	C	ROBERT
1637.0	[m]	C	ROBERT
1638.3	[m]	C	ROBERT
1642.0	[m]	DC	ROBERT
1651.0	[m]	DC	ROBERT
1657.0	[m]	DC	ROBERT
1660.0	[m]	DC	ROBERT
1669.0	[m]	DC	ROBERT
1678.0	[m]	DC	ROBERT
1687.0	[m]	DC	ROBERT
1696.0	[m]	DC	ROBERT
1705.0	[m]	DC	ROBERT
1714.0	[m]	DC	ROBERT
1723.0	[m]	DC	ROBERT
1732.0	[m]	DC	ROBERT
1741.0	[m]	DC	ROBERT
1759.0	[m]	DC	ROBERT
1768.0	[m]	DC	ROBERT
1777.0	[m]	DC	ROBERT
1786.0	[m]	DC	ROBERT
1795.0	[m]	DC	ROBERT
1804.0	[m]	DC	ROBERT
1813.0	[m]	DC	ROBERT
1822.0	[m]	DC	ROBERT
1831.0	[m]	DC	ROBERT

1840.0	[m]	DC	ROBERT
1849.0	[m]	DC	ROBERT
1858.0	[m]	DC	ROBERT
1867.0	[m]	DC	ROBERT
1876.0	[m]	DC	ROBERT
1885.0	[m]	DC	ROBERT
1894.0	[m]	DC	ROBERT
1903.0	[m]	DC	ROBERT
1912.0	[m]	DC	ROBERT
1921.0	[m]	DC	ROBERT
1930.0	[m]	DC	ROBERT
1939.0	[m]	DC	ROBERT
1948.0	[m]	DC	ROBERT
1966.0	[m]	DC	ROBERT
1975.0	[m]	DC	ROBERT
1984.0	[m]	DC	ROBERT
1993.0	[m]	DC	ROBERT
2002.0	[m]	C	ROBERT
2002.3	[m]	C	ROBERT
2002.7	[m]	C	ROBERT
2004.7	[m]	C	ROBERT
2006.9	[m]	C	ROBERT
2009.4	[m]	C	ROBERT
2010.7	[m]	C	ROBERT
2012.5	[m]	C	ROBERT
2015.5	[m]	C	ROBERT
2017.7	[m]	C	ROBERT
2019.1	[m]	C	ROBERT
2019.4	[m]	C	ROBERT
2020.4	[m]	C	ROBERT
2020.9	[m]	C	ROBERT
2021.9	[m]	C	ROBERT
2022.5	[m]	C	ROBERT
2024.7	[m]	C	ROBERT
2029.0	[m]	DC	ROBERT
2038.0	[m]	DC	ROBERT
2047.0	[m]	DC	ROBERT
2056.0	[m]	DC	ROBERT
2065.0	[m]	DC	ROBERT
2074.0	[m]	DC	ROBERT

2075.2	[m]	C	ROBERT
2076.5	[m]	C	ROBERT
2077.2	[m]	C	ROBERT
2080.8	[m]	C	ROBERT
2086.7	[m]	C	ROBERT
2087.5	[m]	C	ROBERT
2091.3	[m]	C	ROBERT
2091.6	[m]	C	ROBERT
2092.7	[m]	C	ROBERT
2095.9	[m]	C	ROBERT
2098.5	[m]	C	ROBERT
2102.5	[m]	C	ROBERT
2104.5	[m]	C	ROBERT
2105.8	[m]	C	ROBERT
2106.1	[m]	C	ROBERT
2106.3	[m]	C	ROBERT
2106.8	[m]	C	ROBERT
2108.8	[m]	C	ROBERT
2110.0	[m]	DC	ROBERT
2110.7	[m]	C	ROBERT
2113.5	[m]	C	ROBERT
2115.8	[m]	C	ROBERT
2116.6	[m]	C	ROBERT
2118.4	[m]	C	ROBERT
2119.5	[m]	C	ROBERT
2119.8	[m]	C	ROBERT
2120.5	[m]	C	ROBERT
2120.5	[m]	C	ROBERT
2120.7	[m]	C	ROBERT
2121.0	[m]	C	ROBERT
2122.7	[m]	C	ROBERT
2127.7	[m]	C	ROBERT
2132.9	[m]	C	ROBERT
2134.5	[m]	C	ROBERT
2139.6	[m]	C	ROBERT
2146.3	[m]	C	ROBERT
2152.0	[m]	C	ROBERT
2153.1	[m]	C	ROBERT
2155.9	[m]	C	ROBERT
2156.7	[m]	C	ROBERT

2159.8	[m]	C	ROBERT
2165.5	[m]	C	ROBERT
2167.9	[m]	C	ROBERT
2173.0	[m]	DC	ROBERT
2182.0	[m]	DC	ROBERT
2191.0	[m]	DC	ROBERT
2200.0	[m]	DC	ROBERT
2209.0	[m]	DC	ROBERT
2227.0	[m]	DC	ROBERT
2236.0	[m]	DC	ROBERT
2245.0	[m]	DC	ROBERT
2254.0	[m]	DC	ROBERT
2263.0	[m]	DC	ROBERT
2272.0	[m]	DC	ROBERT
2281.0	[m]	DC	ROBERT
2290.0	[m]	DC	ROBERT
2299.0	[m]	DC	ROBERT
2308.0	[m]	DC	ROBERT
2317.0	[m]	DC	ROBERT
2326.0	[m]	DC	ROBERT
2335.0	[m]	DC	ROBERT
2344.0	[m]	DC	ROBERT
2353.0	[m]	DC	ROBERT
2362.0	[m]	DC	ROBERT
2371.0	[m]	DC	ROBERT
2380.0	[m]	DC	ROBERT
2389.0	[m]	DC	ROBERT
2398.0	[m]	DC	ROBERT
2407.0	[m]	DC	ROBERT
2416.0	[m]	DC	ROBERT
2425.0	[m]	DC	ROBERT
2434.0	[m]	DC	ROBERT
2443.0	[m]	DC	ROBERT
2452.0	[m]	DC	ROBERT
2461.0	[m]	DC	ROBERT
2470.0	[m]	DC	ROBERT
2479.0	[m]	DC	ROBERT
2497.0	[m]	DC	ROBERT
2506.0	[m]	DC	ROBERT
2524.0	[m]	DC	ROBERT

2533.0	[m]	DC	ROBERT
2551.0	[m]	DC	ROBERT
2560.0	[m]	DC	ROBERT
2569.0	[m]	DC	ROBERT
2578.0	[m]	DC	ROBERT
2587.0	[m]	DC	ROBERT
2596.0	[m]	DC	ROBERT
2605.0	[m]	DC	ROBERT
2614.0	[m]	DC	ROBERT
2623.0	[m]	DC	ROBERT

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
335	NORDLAND GP
375	SOTBAKKEN GP
375	TORSK FM
1441	ADVENTDALEN GP
1441	KOLMULE FM
1702	KOLJE FM
1932	KNURR FM
2000	HEKKINGEN FM
2018	FUGLEN FM
2071	KAPP TOSCANA GP
2071	STØ FM
2221	NORDMELA FM
2299	TUBÅEN FM
2363	FRUHOLMEN FM
2563	SNADD FM

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CMR XPT	1533	2030
CMR XPT	2215	2592
FMI MSIP	1514	2031
FMI MSIP	2033	2626
HRLA PEX ECS HNGS	1514	2020

HRLA PEX ECS HNGS	2033	2653
MDT GR	1587	1997
MDT GR	2073	2154
MSCT GR	1550	2000
MSCT GR	2045	2582
MSCT GR	2298	2601
MSIP	1000	1514
MSIP	1450	2033
MWD - GR RES PWD	0	0
MWD - NBGR GR RES PWD SON DIR PW	643	1510
MWD - NBGR GR RES SON DEN NEU PW	1514	2026
MWD - NBGR NBRES GR RES SON DEN	2034	2624
USIT GR	1000	1510
USIT GR	1450	2033
VSI GR	338	2615

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	394.0	36	394.0	0.00	LOT
SURF.COND.	20	642.0	26	650.0	1.55	LOT
INTERM.	13 3/8	1515.0	17 1/2	1522.0	1.76	LOT
INTERM.	9 5/8	2034.0	12 1/4	2036.0	2.04	LOT
OPEN HOLE		2625.0	8 1/2	2615.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
650	1.14	8.0		KCl/Polymer/GEM	
688	1.15	8.0		KCl/Polymer/GEM	
1015	1.17	13.0		KCl/Polymer/GEM	
1268	1.17	14.0		KCl/Polymer/GEM	
1507	1.18	16.0		KCl/Polymer/GEM	
1522	1.21	16.0		KCl/Polymer/GEM	
1522	1.18	15.0		KCl/Polymer/GEM	

1583	1.21	17.0		KCl/Polymer/GEM	
1700	1.21	18.0		KCl/Polymer/GEM	
2024	1.21	20.0		KCl/Polymer/GEM	
2100	1.20	16.0		KCl/Polymer/GEM	
2112	1.21	19.0		KCl/Polymer/GEM	
2259	1.17	16.0		KCl/Polymer/GEM	
2625	1.15	18.0		KCl/Polymer/GEM	

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]
6592_Formation_pressure_(Formasjonstrykk)	PDF	0.28