

**General information**

Wellbore name	7120/1-1
Type	EXPLORATION
Purpose	WILDCAT
Status	SUSPENDED
Factmaps in new window	link to map
Main area	BARENTS SEA
Well name	7120/1-1
Seismic location	TNGS 83 - 142 SP. 2891
Production licence	108
Drilling operator	A/S Norske Shell
Drill permit	480-L
Drilling facility	BORGNY DOLPHIN
Drilling days	92
Entered date	16.08.1985
Completed date	15.11.1985
Release date	15.11.1987
Publication date	11.04.2003
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL/GAS SHOWS
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	342.0
Total depth (MD) [m RKB]	2569.0
Final vertical depth (TVD) [m RKB]	2568.0
Maximum inclination [°]	3.1
Bottom hole temperature [°C]	58
Oldest penetrated age	LATE PERMIAN
Oldest penetrated formation	ØRRET FM
Geodetic datum	ED50
NS degrees	71° 55' 0.83" N
EW degrees	20° 18' 7.13" E
NS UTM [m]	7980020.26
EW UTM [m]	475816.85
UTM zone	34
NPDID wellbore	484



Wellbore history

General

Well 7120/1-1 was drilled on the Alpha structure in the north of block 7120/1. The primary objective of the well was to test Palaeozoic carbonates and elastics in a partly fault-bounded/truncated dip closure on the western flank of the Loppa High. Potential Early Triassic sandstones in a low relief dip closure were a secondary objective.

Operations

Well 7120/1-1 was spudded on 16 August with the semi-submersible installation "Borgny Dolphin" and drilled to 2569 m where it was suspended on 15 November due to NPD drilling regulations during winter season. On 2 December permission was granted to continue operations and drilling continued to 2610 m. On 26 December the well was again suspended at the request of the Norwegian Petroleum Directorate because of safety considerations in adverse weather conditions. The well was re-entered on 13 March 1986 and drilled to a TD of 4003 m in basement rocks. The well was drilled with seawater and bentonite hi-vis pills down to 485 m. From there to TD gypsum/polymer mud was used with various "Lost Circulation Material" pills to cure mud losses.

The well encountered weak hydrocarbon shows from 800 m down to 2200 m and oil shows in Late Permian carbonates (Tempelfjorden Group, Ørret Formation). No intervals of significant reservoir potential were recognized from logs or described from cuttings in the Tertiary or Triassic sections. Below this sequence, three main Permian carbonate units were identified from logs and cuttings description. A porosity range of 5-10% for the limestone sequence between 2415 and 2461 m has been derived from log evaluation. In the basal part of this interval, a black shale was detected with a gas peak of 13% total gas. The lower limestone interval (2607-3277 m) contained weak fluorescence on cuttings from the top down to 2690 m.

No coring was attempted in the upper section of this unit due to severe mud losses to the formation. A core was recovered from the base of the interval where alternating limestone, clay stone, marl and shale were described with porosities in the order of 4%. In the lowermost interval (3310-3951 m), dolomite was described as the main lithology with porosities around 3%. No shows were registered. In general, the carbonates had low porosities, but two zones of higher porosity were detected from logs between 2810-2850 m and 2610-2660 m. Two production tests indicated that the limestone was permeable, but no pore fluids were produced.

Two cores were cut, one from 3186 m to 3194.5 m, a second from 4000 m – 4003 m in basement rocks. RFT fluid samples were taken at 2798 m ("Slight smell of hydrocarbons"), 3533 m, and 3714.5 m. Bottom hole temperatures from Wire line logging gave a maximum reading of 121 deg C at TD. True bottom hole temperature at TD is thus estimated to 125 °C. The well was plugged and abandoned as a dry hole with oil and gas shows on 21 July 1986.

Testing

Two production tests were carried out in the Upper Permian intervals 2810-2855 and 2607-2665 m. Neither interval flowed any pore fluids, not even after acid treatment. Upon nitrogen displacement treatment some fluids were produced, indicating that the formations in both intervals contained water with traces of natural gas, while the interval 2607-2665 m also produced some oil film. Attempts to analyse the oil failed due to the small amounts.



Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
500.00	3982.00

Cuttings available for sampling?	YES
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Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
720.0	[m]	DC	
740.0	[m]	DC	
850.0	[m]	DC	
1070.0	[m]	DC	
1400.0	[m]	DC	
1550.0	[m]	DC	
1610.0	[m]	DC	
1680.0	[m]	DC	
1870.0	[m]	DC	
2030.0	[m]	DC	
2050.0	[m]	DC	
2154.0	[m]	DC	
2226.0	[m]	DC	
2250.0	[m]	DC	
2283.0	[m]	DC	
2310.0	[m]	DC	
2319.0	[m]	DC	
2327.0	[m]	DC	
2354.0	[m]	DC	
2363.0	[m]	DC	
2373.0	[m]	DC	
2379.0	[m]	DC	
2390.0	[m]	DC	
2420.0	[m]	DC	
2466.0	[m]	DC	
2535.0	[m]	DC	
2595.0	[m]	DC	
2607.0	[m]	DC	
2899.0	[m]	DC	
3142.0	[m]	DC	

**Lithostratigraphy**

Top depth [mMD RKB]	Lithostrat. unit
367	NORDLAND GP
490	SOTBAKKEN GP
490	TORSK FM
692	KAPP TOSCANA GP
692	FRUHOLMEN FM
1106	SNADD FM
2285	SASSENDALEN GP
2285	KOBBE FM
2315	KLAPPMYSS FM
2373	HAVERT FM
2403	TEMPELFJORDEN GP
2403	ØRRET FM
2430	RØYE FM
2458	ØRRET FM

Geochemical information

Document name	Document format	Document size [MB]
484_1	pdf	0.72
484_2	pdf	1.57

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

Document name	Document format	Document size [MB]
484_7120_1_1_COMPLETION_REPORT_AND_LOG	pdf	14.38

Logs

Log type	Log top depth [m]	Log bottom depth [m]
ACL GR	2405	2477
ACSIG	2405	2477





CBL	745	2090
CBL VDL	2000	2413
CDL CNL CAL GR	460	2480
DIFL ACL SP GR	360	2422
DIPLOG	2086	2416
FMT	2136	2412
FMT	2425	2466
MLL DLL GR	2413	2480
SWS	495	2478

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	468.5	36	480.0	0.00	LOT
SURF.COND.	20	1101.0	26	1112.0	1.37	LOT
INTERM.	13 3/8	2093.0	17 1/2	2107.0	1.50	LOT
INTERM.	9 5/8	2569.0	12 1/4	2569.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
378	1.03			WATER BASED	
456	1.03			WATER BASED	
480	1.04	120.0		WATER BASED	
581	1.04	60.0		WATER BASED	
725	1.05	41.0		WATER BASED	
800	1.07	42.0		WATER BASED	
832	1.06	66.0		WATER BASED	
1112	1.12	64.0		WATER BASED	
1158	1.12	37.0		WATER BASED	
1253	1.12	45.0		WATER BASED	
1340	1.13	50.0		WATER BASED	
1449	1.17	50.0		WATER BASED	
1470	1.17	55.0		WATER BASED	
1523	1.17	54.0		WATER BASED	
1628	1.17	49.0		WATER BASED	
1692	1.17	47.0		WATER BASED	



1757	1.17	48.0		WATER BASED	
1834	1.17	46.0		WATER BASED	
1868	1.17	48.0		WATER BASED	
1959	1.17	46.0		WATER BASED	
2075	1.17	45.0		WATER BASED	
2107	1.17	17.0		WATER BASED	
2281	1.28	49.0		WATER BASED	
2307	1.37	55.0		WATER BASED	
2373	1.25	55.0		WATER BASED	
2376	1.26	47.0		WATER BASED	
2400	1.27	46.0		WATER BASED	
2411	1.27	50.0		WATER BASED	
2426	1.30	47.0		WATER BASED	
2426	1.27	48.0		WATER BASED	
2447	1.28	43.0		WATER BASED	
2453	1.28	48.0		WATER BASED	
2480	1.34	45.0		WATER BASED	
2494	1.37	45.0		WATER BASED	
2537	1.37	45.0		WATER BASED	
2569	1.37	24.0		WATER BASED	

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
4001.30	[m]
3192.55	[m]
3194.20	[m]
3190.70	[m]
3188.65	[m]
3187.35	[m]
3186.62	[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]
484 Formation pressure (Formasjonstrykk)	PDF	0.28

