General information

Wellbore name	7120/1-1 R2
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link
Main area	BARENTS SEA
Well name	7120/1-1
Seismic location	TNGS 83 - 142 SP. 2891
Drilled in production licence	108
Drilling operator	A/S Norske Shell
Drill permit	480-L3
Drilling facility	BORGNY DOLPHIN
Drilling days	126
Entered date	13.03.1986
Completed date	21.07.1986
Release date	21.07.1988
Publication date	11.04.2003
Purpose - planned	WILDCAT
Reentry	YES
Reentry activity	DRILLING/PLUGGING
Content	OIL/GAS SHOWS
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	342.0
Total depth (MD) [m RKB]	4003.0
Final vertical depth (TVD) [m RKB]	3978.0
Maximum inclination [°]	12.5
Bottom hole temperature [°C]	125
Oldest penetrated age	PRE-DEVONIAN
Oldest penetrated formation	BASEMENT
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	897

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.

Cores at the NPD

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	3185.8	3194.5	[m]
2	4000.0	4002.3	[m]

Total core sample length [m]	11.0
Cores available for sampling?	YES

Core photos


3186-3190m


3190-3195m


4000-4002m

Lithostratigraphy

Top depth [m]	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
2604	RØYE FM
2997	BJARMELAND GP
2997	ULV FM
3220	GIPSDALEN GP
3220	ØRN FM

3947	BASEMENT

Composite logs

Document name	Document format	Document size [KB]
897	pdf	0.74

Geochemical information

Document name	Document format	Document size [KB]
897_1	pdf	0.72
897_2	pdf	1.57

Documents - older NPD WDSS reports and other related documents

Document name	Document format	Document size [KB]
897_01_WDSS_General_Information	pdf	0.31
897_02_WDSS_completion_log	pdf	0.29
897_01_WDSS_General_Information	pdf	0.31
897_02_WDSS_completion_log	pdf	0.29

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2810	2855	25.4
2.0	2607	2665	6.4

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				
2.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0					
2.0					

Casing and leak-off tests

Casing type	Casing diam. [inch]	Casing depth [m]	Hole diam. [inch]	Hole depth [m]	LOT 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	2414.0	12 1/4	2426.0	0.00	LOT
INTERM.	9 5/8	2414.0	12 1/4	2610.0	1.60	LOT
LINER	7	4003.0	8 1/2	4003.0	1.80	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
406	1.38	10.0		WATER BASED	
567	1.39	10.0		WATER BASED	
809	1.41	16.0		WATER BASED	
2093	1.39	20.0		WATER BASED	
2414	1.39	19.0		WATER BASED	
2429	1.40	41.0		WATER BASED	
2607	1.25			WATER BASED	
2612	1.40	50.0		WATER BASED	
2632	1.40	12.0		WATER BASED	
2652	1.40	15.0		WATER BASED	
2672	1.40	15.0		WATER BASED	
2694	1.39	15.0		WATER BASED	
2695	1.40	15.0		WATER BASED	
2698	1.40	17.0		WATER BASED	
2709	1.39	12.0		WATER BASED	
2730	1.39	11.0		WATER BASED	
2754	1.39	11.0		WATER BASED	
2770	1.39	11.0		WATER BASED	
2798	1.40	10.0		WATER BASED	
2804	1.40	12.0		WATER BASED	
2810	1.25			WATER BASED	
2854	1.39	10.0		WATER BASED	

2855	1.39	10.0		WATER BASED	
2858	1.39	11.0		WATER BASED	
2861	1.39	8.0		WATER BASED	
2885	1.39	10.0		WATER BASED	
2887	1.39	9.0		WATER BASED	
2905	1.39	9.0		WATER BASED	
2917	1.39	9.0		WATER BASED	
2933	1.39	9.0		WATER BASED	
2960	1.39	10.0		WATER BASED	
2974	1.39	10.0		WATER BASED	
3001	1.40	12.0		WATER BASED	
3037	1.39	11.0		WATER BASED	
3053	1.39	11.0		WATER BASED	
3093	1.39	11.0		WATER BASED	
3152	1.38	11.0		WATER BASED	
3157	1.39	10.0		WATER BASED	
3166	1.39	10.0		WATER BASED	
3185	1.39	12.0		WATER BASED	
3209	1.39	10.0		WATER BASED	
3225	1.39	13.0		WATER BASED	
3263	1.39	11.0		WATER BASED	
3286	1.39	12.0		WATER BASED	
3304	1.39	12.0		WATER BASED	
3340	1.39	12.0		WATER BASED	
3359	1.39	14.0		WATER BASED	
3386	1.40	13.0		WATER BASED	
3426	1.40	12.0		WATER BASED	
3437	1.39	12.0		WATER BASED	
3532	1.39	13.0		WATER BASED	
3551	1.39	14.0		WATER BASED	
3590	1.39	14.0		WATER BASED	
3598	1.25	12.0		WATER BASED	
3609	1.39	13.0		WATER BASED	
3659	1.39	14.0		WATER BASED	
3722	1.39	14.0		WATER BASED	
3725	1.38	9.0		WATER BASED	
3758	1.25	7.0		WATER BASED	
3788	1.25	8.0		WATER BASED	
3809	1.25	8.0		WATER BASED	
3826	1.25	8.0		WATER BASED	

3844	1.25	8.0		WATER BASED	
3857	1.25	9.0		WATER BASED	
3874	1.25	10.0		WATER BASED	
3883	1.25	12.0		WATER BASED	
3907	1.25	14.0		WATER BASED	
3931	1.25	12.0		WATER BASED	
3939	1.25	12.0		WATER BASED	
3989	1.25	12.0		WATER BASED	
4000	1.10	12.0		WATER BASED	
4003	1.25	11.0		WATER BASED	