General information

Wellbore name	7324/10-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	BARENTS SEA
Well name	7324/10-1
Seismic location	GLR 3-87-19B SP. 3290
Production licence	162
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	609-L
Drilling facility	ROSS RIG (2)
Drilling days	78
Entered date	03.06.1989
Completed date	19.08.1989
Release date	19.08.1991
Publication date	11.01.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	SHOWS
Discovery wellbore	NO
Kelly bushing elevation [m]	23.0
Water depth [m]	408.0
Total depth (MD) [m RKB]	2919.0
Final vertical depth (TVD) [m RKB]	2919.0
Maximum inclination [°]	2.8
Bottom hole temperature [°C]	119
Oldest penetrated age	EARLY TRIASSIC
Oldest penetrated formation	HAVERT FM
Geodetic datum	ED50
NS degrees	73° 9' 49.45'' N
EW degrees	24° 18' 47.62'' E
NS UTM [m]	8120918.38
EW UTM [m]	413162.08
UTM zone	35
NPDID wellbore	1411

Wellbore history

General

Well 7324/10-1 was drilled on the Alpha structure in the Maud Basin on the Bjarmeland Platform. The main objective was to test the hydrocarbon potential in a prospect at the Base Anisian level (Top Klappmyss Formation). The secondary objective was to test sandstones below the Base Smithian level (Top Havert Formation). In addition the well should test the source rock potential in the Triassic, Base Snadd, and Base Kobbe Formations. Possible sand layers at 575 - and 695 m justified a shallow gas warning at these levels. Planned TD was at 3400 m in Late Permian.

Operations and results

Wildcat well 7324/10-1 was spudded with the semi-submersible rig Ross Rig 3 June 1989 and drilled to TD at 2919 m in the Early Triassic Havert Formation. TD was set approximately 500 m higher than prognosed due to lost circulation problems in the interval 1800 m to 2626 m. The well was drilled with seawater down to 558 m, with gypsum / polymer from 558 m to 2289 m, and with gel / lignosulphonate from 2289 m to TD. No shallow gas was encountered.

Minor gas was encountered in the Kobbe Formation at 1607 m but the sandstones had very poor permeability and no RFT samples were collected. The main target at Base Anisian/Klappmyss Formation at 1767 m in the prognosis, proved to be an intra Anisian seismic marker encountered at 1822 m. At this level there was no reservoir developed, neither was there any reservoir developed at the new Anisian seismic marker on 2272 m. The secondary objective at top Havert Formation encountered at 2512 m had a limited reservoir developed. Shows were recorded in the Snadd Formation from 617 m to 692 m and 1150 m to 1186 m. Organic rich shales were encountered in Snadd, Kobbe, and Klappmyss Formations, but from organic geochemistry only a thin sequences in the Snadd Formation could be classified as good, possibly oil-prone source rocks. These were: a carbonaceous shale at 989 m and a thin clay stone sequence at 1603 m to 1607 m. At 2267 m at the base of the Kobbe Formation a third organic-rich sequence (TOC typically 2 ? 4 %) is encountered, but hydrogen index in this sequence indicate only gas prone kerogen at best, possibly due to advanced maturity. The well reaches oil-window maturity at ca 1000 m, the wet gas window is reached at ca 2200 m, and dry gas maturity is reached at ca 2700 m. Temperatures measured during well-logging indicate an average thermal gradient, from surface to TD, of ca 46 °C/km. Pore pressure is normal down to ca 1270 m. From 1270 m down to the organic rich shales at 2267 the pore pressure is abnormal. Below 2500 m the pressure starts to decrease. A total of five cores were cut in the well, and 450 sidewall cores were attempted but only 384 was recovered. One RFT fluid sample was taken at 570 m. The sample contained mud filtrate and formation water with no associated gas.

The well was permanently abandoned 19 August 1989 as a dry well with shows.

Testing

No drill stem test was performed

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
560.00	2917.00

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	1411.0	1414.6	[m]
2	1659.0	1667.3	[m]
3	1777.0	1782.6	[m]
4	2640.2	2640.5	[m]
5	2640.5	2659.1	[m]

Total core sample length [m]	36.4
Cores available for sampling?	YES

Core photos

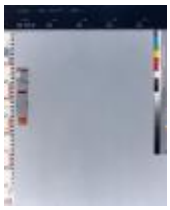

1411-1414m


1659-1664m


1664-1667m


1777-1782m


1782-1783m


2640-2641m


2640-2645m


2645-2650m


2650-2655m


2655-2659m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
499.0	[m]	SWC	STATO
508.0	[m]	SWC	STATO
517.0	[m]	SWC	STATO
528.0	[m]	SWC	STATO
537.0	[m]	SWC	STATO

547.0	[m]	SWC	STATO
550.0	[m]	SWC	STATO
552.0	[m]	SWC	STATO
554.0	[m]	SWC	STATO
563.0	[m]	SWC	STATO
567.0	[m]	SWC	STATO
573.0	[m]	SWC	STATO
582.0	[m]	SWC	STATO
599.0	[m]	SWC	STATO
615.0	[m]	SWC	STATO
633.0	[m]	SWC	STATO
667.0	[m]	SWC	STATO
676.5	[m]	SWC	STATO
686.0	[m]	SWC	STATO
698.0	[m]	SWC	STATO
767.0	[m]	SWC	STATO
783.5	[m]	SWC	STATO
814.5	[m]	SWC	STATO
835.0	[m]	SWC	STATO
858.0	[m]	SWC	STATO
888.0	[m]	SWC	STATO
924.0	[m]	SWC	STATO
947.0	[m]	SWC	STATO
976.0	[m]	SWC	STATO
1010.0	[m]	SWC	STATO
1033.0	[m]	SWC	STATO
1085.0	[m]	SWC	STATO
1108.0	[m]	SWC	STATO
1148.0	[m]	SWC	STATO
1168.0	[m]	SWC	STATO
1185.0	[m]	SWC	STATO
1204.0	[m]	SWC	STATO
1230.0	[m]	SWC	STATO
1253.0	[m]	SWC	STATO
1273.0	[m]	SWC	STATO
1284.0	[m]	SWC	STATO
1318.0	[m]	SWC	STATO
1335.0	[m]	SWC	STATO
1360.5	[m]	SWC	STATO
1394.0	[m]	SWC	STATO

1399.0	[m]	DC	STATO
1412.0	[m]	SWC	STATO
1412.0	[m]	C	STATO
1414.6	[m]	C	STATO
1433.0	[m]	SWC	STATO
1445.0	[m]	SWC	STATO
1465.0	[m]	SWC	STATO
1485.0	[m]	SWC	STATO
1508.0	[m]	SWC	STATO
1543.0	[m]	SWC	STATO
1561.0	[m]	SWC	STATO
1587.0	[m]	SWC	STATO
1605.5	[m]	SWC	STATO
1619.5	[m]	SWC	STATO
1640.0	[m]	SWC	STATO
1667.0	[m]	C	STATO
1671.5	[m]	SWC	STATO
1696.0	[m]	SWC	STATO
1733.0	[m]	SWC	STATO
1756.0	[m]	SWC	STATO
1783.0	[m]	C	STATO
1784.5	[m]	SWC	STATO
1802.0	[m]	SWC	STATO
1822.0	[m]	SWC	STATO
1834.0	[m]	SWC	STATO
1856.0	[m]	SWC	STATO
1912.0	[m]	DC	STATO
1925.0	[m]	SWC	STATO
1955.0	[m]	SWC	STATO
1979.0	[m]	SWC	STATO
2000.0	[m]	SWC	STATO
2027.0	[m]	SWC	STATO
2050.0	[m]	SWC	STATO
2070.0	[m]	SWC	STATO
2095.0	[m]	SWC	STATO
2118.0	[m]	SWC	STATO
2155.0	[m]	SWC	STATO
2183.0	[m]	SWC	STATO
2212.0	[m]	SWC	STATO
2245.0	[m]	SWC	STATO

2269.0	[m]	DC	STATO
2305.0	[m]	SWC	STATO
2345.0	[m]	SWC	STATO
2385.5	[m]	SWC	STATO
2386.0	[m]	DC	STATO
2434.0	[m]	DC	STATO
2469.0	[m]	SWC	STATO
2521.0	[m]	SWC	STATO
2551.0	[m]	DC	STATO
2557.5	[m]	SWC	STATO
2603.0	[m]	SWC	STATO
2637.0	[m]	SWC	STATO
2690.0	[m]	SWC	STATO
2732.0	[m]	SWC	STATO
2786.0	[m]	SWC	STATO
2805.0	[m]	DC	STATO
2833.0	[m]	DC	STATO
2876.0	[m]	DC	STATO
2918.0	[m]	DC	STATO

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
431	NORDLAND GP
480	ADVENTDALEN GP
480	KOLMULE FM
553	KNURR FM
561	FUGLEN FM
569	KAPP TOSCANA GP
569	STØ FM
577	FRUHOLMEN FM
606	SNADD FM
1607	SASSENDALEN GP
1607	KOBBE FM
2272	KLAPPMYSS FM
2512	HAVERT FM

Composite logs

Document name	Document format	Document size [MB]
1411	pdf	0.48

Geochemical information

Document name	Document format	Document size [MB]
1411_1	pdf	1.36

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

Document name	Document format	Document size [MB]
1411_01_WDSS_General_Information	pdf	0.26
1411_02_WDSS_completion_log	pdf	0.17

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

Document name	Document format	Document size [MB]
1411_7324_10_1_COMPLETION_REPORT_AND_LOG	pdf	31.71

Logs

Log type	Log top depth [m]	Log bottom depth [m]
AMS LDL CNL GR	2325	2607
AMS SHDT	1290	2205
AMS SHDT	2325	2607
AMS SHDT	2627	2921
CBL VDL GR	554	2575
CST	496	556
CST	557	936
CST	943	1561
CST	1587	1856
CST	1865	2212
CST	2222	2610

CST	2222	2610
CST	2632	2917
CST	2637	2918
DIL LSS GR SP	493	2917
LDL CNL GR CAL	554	2920
LDL GR CAL	493	557
LSS VDL	1550	2212
MWD GR RES DIR	493	2921
NGT	2627	2920
RFT HP	570	654
RFT HP	1607	2185
RFT HP	2516	2621
SHDT	554	2921
VSP	554	1530
VSP	1470	2151
VSP	2150	2910

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	494.0	36	497.0	0.00	LOT
INTERM.	20	554.0	26	559.0	1.35	LOT
INTERM.	13 3/8	1551.0	17 1/2	1570.0	1.59	LOT
INTERM.	9 5/8	2216.0	12 1/4	2235.0	1.60	LOT
LINER	7	2626.0	8 1/2	2627.0	1.71	LOT
OPEN HOLE		2919.0	6	2919.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
559	1.18	1000.0	4.0	WATER BASED	08.06.1989
560	1.20	1100.0	4.5	WATER BASED	09.06.1989
765	1.20	1300.0	3.5	WATER BASED	12.06.1989
784	1.20	1100.0	3.5	WATER BASED	12.06.1989
940	1.20	1100.0	5.0	WATER BASED	22.08.1989
990	1.20	1400.0	3.5	WATER BASED	12.06.1989
1184	1.20	1400.0	3.5	WATER BASED	13.06.1989

1342	1.20	1500.0	3.5	WATER BASED	14.06.1989
1411	1.20	1500.0	3.5	WATER BASED	15.06.1989
1415	1.20	1500.0	3.0	WATER BASED	16.06.1989
1477	1.20	1500.0	4.5	WATER BASED	19.06.1989
1500	1.32	1600.0	3.0	WATER BASED	17.08.1989
1570	1.20	1700.0	4.0	WATER BASED	19.06.1989
1570	1.20	1300.0	3.5	WATER BASED	21.06.1989
1570	1.20	1300.0	3.5	WATER BASED	22.06.1989
1666	1.20	1600.0	4.0	WATER BASED	26.06.1989
1749	1.20	1400.0	4.0	WATER BASED	26.06.1989
1781	1.20	1700.0	4.0	WATER BASED	27.06.1989
1834	1.20	1700.0	5.0	WATER BASED	28.06.1989
1900	1.32	1300.0	2.0	WATER BASED	16.08.1989
1965	1.20	1900.0	4.5	WATER BASED	29.06.1989
2022	1.20	1700.0	5.0	WATER BASED	30.06.1989
2148	1.25	2200.0	5.0	WATER BASED	03.07.1989
2235	1.32	1800.0	5.5	WATER BASED	03.07.1989
2235	1.32	2100.0	6.5	WATER BASED	04.07.1989
2235	1.32	2200.0	7.5	WATER BASED	05.07.1989
2235	1.32	2200.0	6.0	WATER BASED	03.07.1989
2235	1.32	1900.0	6.0	WATER BASED	07.07.1989
2238	1.44	1900.0	6.5	WATER BASED	10.07.1989
2269	1.47	2000.0	5.0	WATER BASED	11.07.1989
2296	1.44	2000.0	6.5	WATER BASED	12.07.1989
2423	1.35	2200.0	4.0	WATER BASED	15.08.1989
2434	1.53	1900.0	6.0	WATER BASED	13.07.1989
2434	1.53	1000.0	20.5	WATER BASED	17.07.1989
2434	1.53	1100.0	9.0	WATER BASED	17.07.1989
2434	1.53	1000.0	23.5	WATER BASED	17.07.1989
2500	1.53	1000.0	7.5	WATER BASED	19.07.1989
2500	1.53	1600.0	9.0	WATER BASED	21.07.1989
2500	1.53	1200.0	4.0	WATER BASED	24.07.1989
2500	1.53	1400.0	4.5	WATER BASED	24.07.1989
2500	1.53	1400.0	16.3	WATER BASED	18.07.1989
2500	1.53	2200.0	3.5	WATER BASED	02.08.1989
2500	1.53	1500.0	3.0	WATER BASED	31.07.1989
2500	1.53	1500.0	3.0	WATER BASED	31.07.1989
2500	1.53	1900.0	4.0	WATER BASED	31.07.1989
2500	1.53	1900.0	4.0	WATER BASED	01.08.1989
2614	1.53	1400.0	4.5	WATER BASED	24.07.1989

2614	1.53	1700.0	7.5	WATER BASED	25.07.1989
2614	1.53	1600.0	6.0	WATER BASED	26.07.1989
2617	1.53	1300.0	4.5	WATER BASED	27.07.1989
2627	1.53	1400.0	3.5	WATER BASED	28.07.1989
2627	1.53	2100.0	3.5	WATER BASED	03.08.1989
2628	1.35	1000.0	7.0	WATER BASED	07.08.1989
2640	1.35	1800.0	7.0	WATER BASED	08.08.1989
2659	1.35	1800.0	3.5	WATER BASED	09.08.1989
2773	1.35	1700.0	4.0	WATER BASED	10.08.1989
2870	1.35	1600.0	3.5	WATER BASED	11.08.1989
2919	1.35	1800.0	4.0	WATER BASED	14.08.1989
2919	1.35	1800.0	3.5	WATER BASED	14.08.1989
2919	1.35	1800.0	3.5	WATER BASED	14.08.1989

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
1664.75	[m]
1664.50	[m]
1659.80	[m]
2640.22	[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]
1411_Formation_pressure_(Formasjonstrykk)	pdf	0.26