

**General information**

Wellbore name	31/2-19 S
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	31/2-19
Seismic location	NH 92 - INLINE 2920 & CROSSLINE 3662
Production licence	191
Drilling operator	Norsk Hydro Produksjon AS
Drill permit	844-L
Drilling facility	WEST VANGUARD
Drilling days	44
Entered date	08.05.1996
Completed date	13.07.1996
Release date	13.07.1998
Publication date	31.10.2003
Purpose - planned	WILDCAT
Reentry	NO
Content	DRY
Discovery wellbore	NO
Kelly bushing elevation [m]	22.0
Water depth [m]	344.0
Total depth (MD) [m RKB]	4114.0
Final vertical depth (TVD) [m RKB]	3669.0
Maximum inclination [°]	38.6
Bottom hole temperature [°C]	117
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	STATFJORD GP
Geodetic datum	ED50
NS degrees	60° 54' 37.5" N
EW degrees	3° 22' 17.32" E
NS UTM [m]	6753026.19
EW UTM [m]	520149.18
UTM zone	31
NPDID wellbore	2798



Wellbore history

General

Well 31/2-19 S is located in the Troll West area some few kilometres to the northwest of the Troll Field. It was drilled to test the hydrocarbon potential of the "S-structure". The primary targets were the Jurassic Sognefjord and Fensfjord Formations, and the Brent Group. Secondary targets were the Paleocene (Lista Formation), the Dunlin Group and the Statfjord Formation.

Operations and results

Exploration well 31/2-19 S was spudded with the semi-submersible installation "West Vanguard" on 8 May and drilled to TD at 4114 m (3669 m TVD RKB) in the Early Jurassic Statfjord Formation. The well was drilled with seawater and hi-vis bentonite sweeps down to 1316 m and with KCl/PHPA polymer mud from 1316 m to TD.

The well encountered 131 m of Intra Lista Formation sandstone, and a 30-40 m sandy interval of poor reservoir quality in the Cretaceous Rødby Formation. Two of the primary prospective levels, the Sognefjord and Fensfjord Formations of the Viking Group were not deposited; instead more than 700 m with the distal Heather formation was penetrated. The Brent Group and Dunlin Group sandstones, and the Statfjord Formation were encountered according to the prognosis. The well was found to be dry (no moveable hydrocarbons) with only weak hydrocarbon shows observed in the Intra Lista Formation sandstone and in sandstones of the Viking and Brent Groups.

Five cores were cut, two of them in the Lista Formation, the third in the Rødby Formation, and the last two ones in the Heater Formation. Pressure points were obtained by the HP gauge of the RFT tool. In the Lista Sandstone, a water gradient of 0.99 g/cc was found. In the Cretaceous, no gradient could be defined due to only tight points. In the Brent Group (the Ness and Eive formation equivalents) a water gradient of 1.01 g/cc was found. In the Dunlin Group three good RFT points were achieved. The two deepest ones (in the Amundsen Formation) indicated a water gradient of 0.98 g/cc. No fluid samples were taken. The well was permanently abandoned on 13 July as a dry well with weak shows.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1320.00	4114.00

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
1	1745.0	1748.4	[m]
2	1748.4	1755.6	[m]
3	2515.6	2517.2	[m]
4	3190.0	3190.9	[m]
5	3196.0	3214.8	[m]

Total core sample length [m]	31.9
Cores available for sampling?	YES

Core photos

1745-1748m



1748-1752m



1752-1755m



2515-2517m



3190-3191m



3196-3201m



3201-3206m



3206-3211m



3211-3214m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1320.0	[m]	DC	RRI
1340.0	[m]	DC	RRI
1360.0	[m]	DC	RRI
1380.0	[m]	DC	RRI
1400.0	[m]	DC	RRI
1420.0	[m]	DC	RRI
1440.0	[m]	DC	RRI
1460.0	[m]	DC	RRI
1480.0	[m]	DC	RRI
1500.0	[m]	DC	RRI



1520.0	[m]	DC	RRI
1521.0	[m]	DC	RRI
1560.0	[m]	SWC	RRI
1580.0	[m]	DC	RRI
1600.0	[m]	DC	RRI
1610.0	[m]	DC	RRI
1620.0	[m]	DC	RRI
1625.0	[m]	SWC	RRI
1632.0	[m]	SWC	RRI
1637.0	[m]	SWC	RRI
1650.0	[m]	DC	RRI
1660.0	[m]	DC	RRI
1678.0	[m]	SWC	RRI
1699.0	[m]	SWC	RRI
1710.0	[m]	DC	RRI
1719.0	[m]	SWC	RRI
1730.0	[m]	DC	RRI
1740.0	[m]	DC	RRI
1750.0	[m]	DC	RRI
1761.0	[m]	SWC	RRI
1770.0	[m]	DC	RRI
1780.0	[m]	DC	RRI
1792.0	[m]	SWC	RRI
1800.0	[m]	DC	RRI
1812.0	[m]	SWC	RRI
1830.0	[m]	SWC	RRI
1855.0	[m]	SWC	RRI
1861.0	[m]	SWC	RRI
1967.0	[m]	SWC	RRI
1982.0	[m]	SWC	RRI
2017.0	[m]	SWC	RRI
2035.0	[m]	SWC	RRI
2059.0	[m]	SWC	RRI
2075.0	[m]	SWC	RRI
2099.0	[m]	SWC	RRI
2120.0	[m]	SWC	RRI
2125.0	[m]	SWC	RRI
2130.0	[m]	SWC	RRI
2147.0	[m]	SWC	RRI
2180.0	[m]	SWC	RRI



2230.0	[m]	SWC	RRI
2276.0	[m]	SWC	RRI
2297.0	[m]	SWC	RRI
2300.0	[m]	DC	RRI
2315.0	[m]	SWC	RRI
2340.0	[m]	SWC	RRI
2380.0	[m]	SWC	RRI
2400.0	[m]	DC	RRI
2416.0	[m]	SWC	RRI
2433.0	[m]	SWC	RRI
2450.0	[m]	DC	RRI
2462.0	[m]	SWC	RRI
2472.0	[m]	SWC	RRI
2478.0	[m]	SWC	RRI
2500.0	[m]	DC	RRI
2540.0	[m]	DC	RRI
2600.0	[m]	DC	RRI
2620.0	[m]	DC	RRI
2630.0	[m]	DC	RRI
2640.0	[m]	SWC	RRI
2650.0	[m]	DC	RRI
2658.0	[m]	SWC	RRI
2660.0	[m]	DC	RRI
2670.0	[m]	DC	RRI
2682.0	[m]	SWC	RRI
2690.0	[m]	DC	RRI
2703.0	[m]	SWC	RRI
2710.0	[m]	SWC	RRI
2720.0	[m]	DC	RRI
2725.0	[m]	SWC	RRI
2733.0	[m]	SWC	RRI
2740.0	[m]	SWC	RRI
2750.0	[m]	SWC	RRI
2760.0	[m]	SWC	RRI
2772.0	[m]	SWC	RRI
2780.0	[m]	DC	RRI
2790.0	[m]	SWC	RRI
2800.0	[m]	DC	RRI
2810.0	[m]	DC	RRI
2814.0	[m]	DC	RRI



2820.0	[m]	DC	RRI
2830.0	[m]	DC	RRI
2840.0	[m]	DC	RRI
2850.0	[m]	DC	RRI
2860.0	[m]	DC	RRI
2870.0	[m]	DC	RRI
2875.0	[m]	DC	RRI
2880.0	[m]	DC	RRI
2890.0	[m]	DC	RRI
2898.0	[m]	DC	RRI
2900.0	[m]	DC	RRI
2910.0	[m]	DC	RRI
2920.0	[m]	DC	RRI
2930.0	[m]	DC	RRI
2940.0	[m]	DC	RRI
2942.0	[m]	DC	RRI
2950.0	[m]	DC	RRI
2960.0	[m]	DC	RRI
2970.0	[m]	DC	RRI
2972.0	[m]	DC	RRI
2980.0	[m]	DC	RRI
2983.0	[m]	DC	RRI
2990.0	[m]	DC	RRI
3000.0	[m]	DC	RRI
3010.0	[m]	DC	RRI
3020.0	[m]	DC	RRI
3030.0	[m]	DC	RRI
3032.0	[m]	DC	RRI
3042.0	[m]	DC	RRI
3050.0	[m]	DC	RRI
3060.0	[m]	DC	RRI
3070.0	[m]	DC	RRI
3080.0	[m]	DC	RRI
3090.0	[m]	DC	RRI
3100.0	[m]	DC	RRI
3110.0	[m]	DC	RRI
3130.0	[m]	SWC	RRI
3140.0	[m]	DC	RRI
3150.0	[m]	SWC	RRI
3160.0	[m]	DC	RRI



3170.0	[m]	SWC	RRI
3178.0	[m]	SWC	RRI
3218.0	[m]	SWC	RRI
3226.0	[m]	SWC	RRI
3244.0	[m]	SWC	RRI
3256.0	[m]	SWC	RRI
3260.0	[m]	SWC	RRI
3271.0	[m]	SWC	RRI
3280.0	[m]	DC	RRI
3304.0	[m]	SWC	RRI
3311.0	[m]	SWC	RRI
3321.0	[m]	SWC	RRI
3330.0	[m]	DC	RRI
3339.0	[m]	SWC	RRI
3340.0	[m]	DC	RRI
3350.0	[m]	SWC	RRI
3362.0	[m]	SWC	RRI
3379.0	[m]	SWC	RRI
3391.0	[m]	SWC	RRI
3400.0	[m]	DC	RRI
3408.0	[m]	SWC	RRI
3421.0	[m]	SWC	RRI
3429.0	[m]	SWC	RRI
3440.0	[m]	DC	RRI
3450.0	[m]	DC	RRI
3458.0	[m]	SWC	RRI
3470.0	[m]	DC	RRI
3478.0	[m]	SWC	RRI
3495.0	[m]	SWC	RRI
3500.0	[m]	DC	RRI
3510.0	[m]	DC	RRI
3520.0	[m]	DC	RRI
3530.0	[m]	DC	RRI
3540.0	[m]	DC	RRI
3550.0	[m]	DC	RRI
3552.0	[m]	SWC	RRI
3562.0	[m]	SWC	RRI
3567.0	[m]	SWC	RRI
3589.0	[m]	SWC	RRI
3600.0	[m]	DC	RRI



3610.0	[m]	DC	RRI
3621.0	[m]	SWC	RRI
3630.0	[m]	DC	RRI
3646.0	[m]	SWC	RRI
3658.0	[m]	SWC	RRI
3670.0	[m]	DC	RRI
3683.0	[m]	SWC	RRI
3690.0	[m]	DC	RRI
3700.0	[m]	DC	RRI
3710.0	[m]	DC	RRI
3720.0	[m]	DC	RRI
3728.0	[m]	SWC	RRI
3756.0	[m]	SWC	RRI
3770.0	[m]	DC	RRI
3786.0	[m]	SWC	RRI
3800.0	[m]	DC	RRI
3820.0	[m]	DC	RRI
3840.0	[m]	DC	RRI
3867.0	[m]	SWC	RRI
3892.0	[m]	SWC	RRI
3900.0	[m]	DC	RRI
3920.0	[m]	DC	RRI
3939.0	[m]	SWC	RRI
3960.0	[m]	DC	RRI
3980.0	[m]	DC	RRI
3990.0	[m]	SWC	RRI
4000.0	[m]	DC	RRI
4020.0	[m]	DC	RRI
4040.0	[m]	DC	RRI
4060.0	[m]	DC	RRI
4075.0	[m]	SWC	RRI
4100.0	[m]	DC	RRI
4114.0	[m]	DC	RRI

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
367	NORDLAND GP
840	HORDALAND GP



1585	ROGALAND GP
1585	BALDER FM
1633	SELE FM
1694	LISTA FM
1834	NO FORMAL NAME
1965	LISTA FM
1983	VÅLE FM
2126	SHETLAND GP
2126	HARDRÅDE FM
2250	UNDIFFERENTIATED
2466	NO FORMAL NAME
2497	CROMER KNOLL GP
2497	RØDBY FM
2534	SOLA FM
2560	ÅSGARD FM
2577	VIKING GP
2577	DRAUPNE FM
2738	HEATHER FM
3468	BRENT GP
3632	DUNLIN GP
3632	DRAKE FM
3749	AMUNDSEN FM
4059	STATFJORD GP

Composite logs

Document name	Document format	Document size [MB]
2798	pdf	0.71

Geochemical information

Document name	Document format	Document size [MB]
2798_1	pdf	1.78
2798_2	pdf	1.72
2798_3	pdf	0.70



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

Document name	Document format	Document size [MB]
2798_31_2_19_S_COMPLETION_REPORT_AND_COMPLETION_LOG	pdf	24.02

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CST GR	1560	2075
CST GR	2099	3070
CST GR	3150	4070
DLL MSFL DSI LDL SNL NGT AMS SP	1270	3100
DLL MSFL LDL CNL BHC NGT AMS SP	2970	4111
FMS GR AMS	3087	4107
FMS MSFL GR AMS	1309	3098
MSFL GR AMS	2670	2850
MWD - GR RES DIR	366	4100
RFT GR AMS	1764	2496
RFT GR AMS	1870	2471
RFT GR AMS	3178	3922
VSP	1290	3090
VSP	2980	4090

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	428.5	36	428.5	0.00	LOT
INTERM.	13 3/8	1316.0	17 1/2	1316.0	0.00	LOT
INTERM.	9 5/8	3118.0	12 1/4	3118.0	0.00	LOT
OPEN HOLE		4114.0	8 1/2	4114.0	1.64	LOT

Drilling mud





Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
428	1.20			WATER BASED	
1316	1.06			WATER BASED	
1504	1.25	13.0		WATER BASED	
1745	1.25	14.0		WATER BASED	
1748	1.25	20.0		WATER BASED	
2164	1.26	20.0		WATER BASED	
2518	1.26	21.0		WATER BASED	
2620	1.25	21.0		WATER BASED	
2917	1.25	24.0		WATER BASED	
2920	1.25			WATER BASED	
3118	1.30	24.0		WATER BASED	
3196	1.30	20.0		WATER BASED	
3203	1.30	19.0		WATER BASED	
3453	1.30	18.0		WATER BASED	
4114	1.30	17.0		WATER BASED	

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]
2798 Formation pressure (Formasjonstrykk)	pdf	0.24

