

**General information**

Wellbore name	30/11-4
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	30/11-4
Seismic location	83 - 36 SP. 284
Production licence	035
Drilling operator	A/S Norske Shell
Drill permit	402-L
Drilling facility	DYVI DELTA
Drilling days	182
Entered date	25.01.1984
Completed date	24.07.1984
Release date	24.07.1986
Publication date	13.01.2015
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL SHOWS
Discovery wellbore	NO
Kelly bushing elevation [m]	29.0
Water depth [m]	110.0
Total depth (MD) [m RKB]	5255.0
Final vertical depth (TVD) [m RKB]	5248.0
Maximum inclination [°]	9
Bottom hole temperature [°C]	173
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	STATFJORD GP
Geodetic datum	ED50
NS degrees	60° 2' 43.96" N
EW degrees	2° 32' 39.47" E
NS UTM [m]	6656726.58
EW UTM [m]	474615.76
UTM zone	31
NPDID wellbore	98



Wellbore history

**General**

Well 30/11-4 was drilled north-east of the Frigg area in the Fensal Sub-basin in the North Sea. Previous well 30/11-3 was abandoned at top Statfjord Group for technical reasons, due to high pressures, without being production-tested. Well 30/11-4 was then proposed as a virtual re-drill, only some 400 m NE of 30/11-3. The objective of the well was to test the hydrocarbon potential of the Middle Jurassic Vestland Group sandstones and the Early Jurassic Statfjord Group sandstones in a westward tilted horst block

Operations and results

Wildcat well 30/11-4 was spudded with the semi-submersible installation Dyvi Delta on 25 January 1984 and drilled to TD at 5255 m in Late Triassic sediments belonging to the Statfjord Group. At 2179 m the drill string parted, leaving a 24 m fish in the hole. After unsuccessful fishing the well was sidetracked from 1918 m. The well was drilled with bentonite and brack water down to 813 m, with KCl/polymer mud from 813 m to 4205 m, with gel/lignosulphonate/lignite mud from 4205 m to 5059 m, and with gel/polymer lignite mud from 5059 m to TD.

Well 30/11-4 penetrated water bearing reservoir sands in the Tertiary Frigg and Heimdal formations. The Vestland Group was penetrated at 3434 m. This section had oil shows at 3434 m to 3470 m, where some oil emulsion was retrieved by RFT, at 3514 m to 3550 m, and at 3635 m to 3650 m. An anomaly in the reservoir pressure occurred at about 3580 m where a siltstone/claystone interval possibly acts as a seal/pressure barrier. A total of 615 m of sands and shales assigned to the Statfjord Group, between 4640 m and TD in the well. Log interpretation pointed towards the presence of at least 75 metres of sands with porosities up to 20% and water saturations as low as 40%. The Group had gas shows and weak oil/condensate shows on the cores. Subsequent microscopic studies on the cores, taken near to the top of the Group, have revealed that, although rather high porosities are locally preserved, permeability is destroyed by clay mineral authigenesis.

Five cores were cut in the well. One was cut in the Vestland Group from 3514 - 3532 m. The remaining four were cut in the Statfjord Group in the intervals 4632 - 4649 m, 4652 - 4666 m, 4839 - 4839.4 m, and 5011 - 5011.4 m. The two latter were junk basket cores. A depth shift of ca 10 m downwards has to be applied on the cores in order to match with logger's depth. A segregated RFT fluid sample was taken at 3452 m in the Vestland Group. It contained water, gas, and oil emulsion.

The well was permanently abandoned on 24 July 1984 as a dry well with shows.

Testing

The Vestland Group was not considered worth testing. Two drill stem tests were performed in the Statfjord Group.

DST 1 tested the interval 5015 to 5029 m. The test flowed only insignificant and non-representative fluids, even after acid stimulation. Extremely tight formation was concluded. Maximum temperature, measured at 5000.6 m, was 167 °C.

DST 2 tested the intervals 4823 - 4837 m and 4854 - 4875 m. The test produced prior to acidization some 5 to 6 m³ formation water and some bubbles of gas over a period of 3 days at a flowing bottom hole pressure declining from 479 to 90 bar. After stimulation with 12 m³ acid the well produced 22 m³ water during 20 hours. The interval was concluded to be very tight. Maximum temperature, measured at 4809 m, was 162 °C.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
260.00	5255.00

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	3514.0	3531.5	[m]
2	4635.0	4645.7	[m]
3	4652.0	4664.9	[m]
4	4839.0	4839.4	[m]
5	5011.0	5011.4	[m]

Total core sample length [m]	41.9
Cores available for sampling?	YES

Core photos

3514-3519m



3519-3524m



3524-3529m



3529-3531m



4641-4645m



4635-4641m



4652-4658m



4658-4664m



4664-4665m



4839-4839m



5011-5011m

**Palynological slides at the Norwegian Offshore Directorate**

Sample depth	Depth unit	Sample type	Laboratory
3517.6	[m]	C	SPT
3526.9	[m]	C	SPT
3529.6	[m]	C	SPT

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
139	NORDLAND GP
514	UTSIRA FM
1080	HORDALAND GP
1989	FRIGG FM
2160	ROGALAND GP
2160	BALDER FM
2199	HERMOD FM
2345	LISTA FM
2597	VÅLE FM
2611	SHETLAND GP
2611	JORSALFARE FM
2870	KYRRE FM
3156	TRYGGVASON FM
3193	SVARTE FM
3225	CROMER KNOLL GP
3262	VIKING GP
3262	DRAUPNE FM
3283	HEATHER FM
3434	VESTLAND GP
3434	HUGIN FM
3668	SLEIPNER FM
4010	DUNLIN GP
4010	DRAKE FM
4210	COOK FM
4273	BURTON FM
4319	AMUNDSEN FM
4640	STATFJORD GP



Geochemical information

Document name	Document format	Document size [MB]
98_GCH_1	pdf	0.12
98_GCH_2	pdf	4.97
98_GCH_3	pdf	0.53

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

Document name	Document format	Document size [MB]
98_01_WDSS_General_Information	pdf	0.20
98_02_WDSS_completion_log	pdf	0.47

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

Document name	Document format	Document size [MB]
98_30_11_4_Completion_log	pdf	2.73
98_30_11_4_Completion_report	pdf	15.08

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BGT GR	796	2330
CBL VDL GR	248	2351
CBL VDL GR	1050	4202
CBL VDL GR	3428	5047
CYBERLOOK	2362	4202
DLL MSFL GR	2363	4200
DLL MSFL GR	4600	5058
DLL MSFL GR	5051	5220
HDT	3050	4200
HDT	4200	5062
ISF BHC GR	239	812
ISF BHC GR	812	2333





ISF BHC GR	2363	4202
ISF BHC GR	4201	5059
ISF BHC GR	4202	4846
LDL CNL GR	239	813
LDL CNL GR	4202	4841
LDL CNL GR	4600	5059
LDL CNL GR	5051	5224
LDL CNL NGS	2320	4030
NGS	2320	4030
RFT	2607	3915
RFT	4644	5064
RFT	5073	5203
SWC	0	0
VELOCITY	0	5059

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	239.0	36	250.0	0.00	LOT
SURF.COND.	20	796.0	26	812.0	1.10	LOT
INTERM.	13 3/8	2362.0	17 1/2	2375.0	1.79	LOT
INTERM.	9 5/8	4192.0	12 1/4	4205.0	1.94	LOT
LINER	7	5046.0	8 1/2	5059.0	2.09	LOT
OPEN HOLE		5255.0	5 7/8	5255.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
512	1.06	5.0	18.0	WATER BASED	
817	1.07	16.0	13.0	WATER BASED	
1019	1.08	14.0	11.0	WATER BASED	
1310	1.10	16.0	16.0	WATER BASED	
1694	1.09	14.0	13.0	WATER BASED	
2041	1.10	14.0	14.0	WATER BASED	
2460	1.20	19.0	19.0	WATER BASED	
3875	1.25	24.0	19.0	WATER BASED	
4205	1.26			WATER BASED	



4219	1.30			WATER BASED	
4310	1.35			WATER BASED	
4563	1.55	26.0	15.0	WATER BASED	
4652	1.60	24.0	14.0	WATER BASED	
4692	1.58	20.0	13.0	WATER BASED	
4899	1.59	23.0	16.0	WATER BASED	
5069	1.58	23.0	13.0	WATER BASED	
5086	1.56	27.0	15.0	WATER BASED	
5195	1.58	28.0	13.0	WATER BASED	

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
4657.10	[m]
4635.80	[m]
4642.30	[m]
4660.70	[m]
4839.00	[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]
98 Formation pressure (Formasjonstrykk)	pdf	0.23

