



General information





Wellbore name	29/3-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Discovery	29/3-1
Well name	29/3-1
Seismic location	SL: NOD5 - 85 - 04 SP. 245
Production licence	119
Drilling operator	Total Norge AS
Drill permit	514-L
Drilling facility	BYFORD DOLPHIN
Drilling days	119
Entered date	20.05.1986
Completed date	15.09.1986
Release date	15.09.1988
Publication date	17.12.2003
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL/GAS
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	NESS FM
Kelly bushing elevation [m]	25.0
Water depth [m]	131.0
Total depth (MD) [m RKB]	4427.0
Final vertical depth (TVD) [m RKB]	4419.0
Maximum inclination [°]	18.3
Bottom hole temperature [°C]	150
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	STATFJORD GP
Geodetic datum	ED50
NS degrees	60° 57' 50.24" N
EW degrees	1° 56' 13.25" E
NS UTM [m]	6759399.56
EW UTM [m]	442441.23
UTM zone	31
NPDID wellbore	904



Wellbore history

General

Well 29/3-1 was drilled in an area adjacent to several major hydrocarbon discoveries close to the UK-Norway median line. The structure is located in the highest part of a westerly tilted fault panel and the closure is provided by fault to the North East and South and by structural dips westward.

The objectives of the well were to test hydrocarbon potential of the Middle Jurassic Brent sandstones; and to test the reservoir potential of the Dunlin sands.

Operations and results

Wildcat well 29/3-1 was spudded 20 may 1986 by Dolphin Services A/S semi-submersible installation Byford Dolphin and completed 15 September 1986 at a depth of 4427 m in the Early Jurassic Statfjord Formation. The 17 1/2" hole (756 m to 2252 m) was drilled with KCL/polymer fluid. Well section below 13 3/8" casing point (2252 m) was drilled oil based with Safemul Invert Emulsion mud (80 % base oil). Drilling was delayed due to a destroyed guide block, after that drilling proceeded without significant problems. The Tarbert Formation was water bearing with residual hydrocarbons and minor amounts of gas in the top section. The lower Ness Formation contained a 150 m hydrocarbon column. The Dunlin Group was water bearing. The Statfjord Formation was found tight and water bearing. Two cores were cut in the Brent sandstones in the interval 3525 m to 3561 m. Five RFT samples were taken in the Brent Group: 3821.5 m (Ness: oil and water), 3719 m (Ness: oil and gas), 3697.8 m (Ness: oil and gas), 3556.4 m (Tarbert: water and filtrate), and 3530 m (Tarbert: gas and water). All samples showed unusually high oil filtrate recovery due to a very deep invasion by the oil base mud.

The well was plugged and abandoned as a gas and oil discovery.

Testing

Four drillstem tests were performed in the Brent Group.

DST 1B was performed in three zones in the Ness Formation over the interval 3802 m to 3822 m. In this test no flow of reservoir fluid reached surface in 22 hours however, oil (specific gravity: 0.88 g/cm³) and gas (specific gravity (air=1): 0.69) was recovered during reverse circulation.

DST 2B was performed in three zones in the Ness Formation over the interval 3682 m to 3725 m. In this test oil rates varied from 665 Sm³ to 433 Sm³ pr day, gas rates varied between 395000 Sm³ to 535000 Sm³ pr day. GOR varied correspondingly between 595 Sm³/Sm³ to 1235 Sm³/Sm³, indicating gas coning from a gas-cap, with the presence of the gas-oil contact near the well. Oil density was 0.87 g/cm³ and gas gravity was 0.68 (air = 1).

DST 2C was performed in two zones in the Ness Formation over the interval 3682 m to 3699 m. The test flowed 238.5 Sm³ oil and 438960 Sm³ gas pr day with a GOR of 1840 Sm³/Sm³. Oil density was 0.85 and gas gravity was 0.72.

DST 3 was performed in the interval 3522 m to 3530 m in the Tarbert Formation. It produced only Formation water with a little gas.

Cuttings at the Norwegian Offshore Directorate



Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
210.00	4426.00

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	3525.0	3542.9	[m]
2	3543.2	3560.0	[m]

Total core sample length [m]	34.7
Cores available for sampling?	YES

Core photos



3525-3542m



3525-3536m



3525-3542m



3543-3546m



3549-3554m



3555-3560m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1450.0	[m]	DC	GEOCH
1480.0	[m]	DC	GEOCH
1510.0	[m]	DC	GEOCH
1540.0	[m]	DC	GEOCH
1570.0	[m]	DC	GEOCH



1600.0	[m]	DC	GEOCH
1630.0	[m]	DC	GEOCH
1660.0	[m]	DC	GEOCH
1690.0	[m]	DC	GEOCH
1720.0	[m]	DC	GEOCH
1750.0	[m]	DC	GEOCH
1780.0	[m]	DC	GEOCH
1810.0	[m]	DC	GEOCH
1840.0	[m]	DC	GEOCH
1870.0	[m]	DC	GEOCH
1900.0	[m]	DC	GEOCH
1930.0	[m]	DC	GEOCH
1960.0	[m]	DC	GEOCH
1990.0	[m]	DC	GEOCH
2020.0	[m]	DC	GEOCH
2050.0	[m]	DC	GEOCH
2080.0	[m]	DC	GEOCH

Oil samples at the Norwegian Offshore Directorate

Test type	Bottle number	Top depth MD [m]	Bottom depth MD [m]	Fluid type	Test time	Samples available
DST	DST1B	3822.00	3802.00		24.08.1986 - 00:00	YES
DST	DST2B	3725.00	3682.00		02.09.1986 - 00:00	YES
DST	DST2C	3699.00	3682.00		05.09.1986 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
156	NORDLAND GP
530	UTSIRA FM
590	UNDIFFERENTIATED
1500	HORDALAND GP
1580	GRID FM
1598	NO FORMAL NAME
1726	ROGALAND GP



1726	BALDER FM
1771	SELE FM
1780	LISTA FM
2033	VÅLE FM
2061	SHETLAND GP
2061	JORSALFARE FM
2267	KYRRE FM
3286	TRYGGVASON FM
3435	BLODØKS FM
3440	SVARTE FM
3462	CROMER KNOLL GP
3462	RØDBY FM
3466	VIKING GP
3466	HEATHER FM
3523	BRENT GP
3523	TARBERT FM
3562	NESS FM
3852	ETIVE FM
3862	RANNOCH FM
3912	DUNLIN GP
3912	DRAKE FM
4046	COOK FM
4147	BURTON FM
4215	AMUNDSEN FM
4389	STATFJORD GP

Composite logs

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

Geochemical information

Document name	Document format	Document size [MB]
904_1	pdf	1.89
904_2	pdf	1.56



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

Document name	Document format	Document size [MB]
904 01 WDSS General Information	pdf	0.28
904 02 WDSS completion log	pdf	0.34

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

Document name	Document format	Document size [MB]
904 29 3 1 COMPLETION REPORT AND LOG	pdf	18.13

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3802	3822	7.9
2.0	3682	3725	12.7
2.1	3682	3699	12.7
3.0	3522	3530	12.7

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0			36.000	130
2.0	54.000	30.000	50.000	124
2.1	54.000	21.000	37.000	129
3.0	48.000	1.000	34.000	119

Test number	Oil [Sm ³ /day]	Gas [Sm ³ /day]	Oil density [g/cm ³]	Gas grav. rel.air	GOR [m ³ /m ³]
1.0	2		0.878	0.690	
2.0	440	534000	0.868	0.680	1212
2.1	236	438000	0.845	0.720	1858
3.0					





Logs

Log type	Log top depth [m]	Log bottom depth [m]
BGL GR	756	2250
CBL VDL GR	1246	2248
CBL VDL GR	1900	3468
CORR DST-2	3495	3615
CORR DST-3	3390	3475
CST	3475	4385
DELTA-T	3468	3847
DIPMETER	3470	4428
DIS BHC GR	156	758
DIS BHC GR	756	900
DIS BHC GR	756	2250
DIS BHC GR	2251	3485
DIS BHC GR	3468	3613
DIS GR	2251	3427
DITE SDTA GR	4432	3550
ENERJET-220	0	220
EPL PCD	3468	4433
JB BRIDGE PLUG	3200	3450
JB BRIDGR PLUG	3440	3450
JB PACKER DST-2C	3645	3708
JB PLUG DST-2	3716	3747
JB PLUG DST-3	3548	3599
LDL CNL GR	2251	3487
LDL CNL GR	3468	4433
MWD	208	4427
NGS	4433	3468
RFT GR	3526	3543
RFT HP	3530	3861
RFT HP	3530	3697
RFT HP	3553	3821
RFT HP	3556	3610
RFT HP	3719	4050
VSP	800	2240
VSP	2100	4430

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	204.0	36	208.0	1.13	LOT
SURF.COND.	20	756.0	26	770.0	1.49	LOT
INTERM.	13 3/8	2252.0	17 1/2	2265.0	1.87	LOT
INTERM.	9 5/8	3468.0	12 1/4	3484.0	2.06	LOT
LINER	7	4427.0	8 1/2	4427.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
204	1.05	10.0	20.0	WATER BASED	23.05.1986
204	1.05	10.0		WATER BASED	20.05.1986
208	1.05	10.0	20.0	WATER BASED	21.05.1986
295	1.12	17.0	26.0	WATER BASED	23.05.1986
760	1.13	17.0	26.0	WATER BASED	23.05.1986
770	1.13	17.0	26.0	WATER BASED	23.05.1986
770	1.15	15.0	10.0	WATER BASED	08.06.1986
770	1.15	17.0	10.8	WATER BASED	08.06.1986
770	1.15	17.0	11.3	WATER BASED	10.06.1986
770	1.05	10.0	10.0	WATER BASED	11.06.1986
770	1.10	17.0	7.0	WATER BASED	15.06.1986
770	1.15	17.0	11.3	WATER BASED	09.06.1986
931	1.10	16.0	6.7	WATER BASED	15.06.1986
1471	1.14	18.0	10.5	WATER BASED	15.06.1986
1583	1.14	18.0	10.5	WATER BASED	15.06.1986
1782	1.20	22.0	11.0	WATER BASED	16.06.1986
1944	1.20	20.0	10.5	WATER BASED	17.06.1986
2035	1.22	19.0	9.6	WATER BASED	18.06.1986
2169	1.21	26.0	11.5	WATER BASED	19.06.1986
2252	1.30	21.0	9.0	WATER BASED	29.06.1986
2252	1.30	21.0	9.0	WATER BASED	26.06.1986
2265	1.23	17.0	8.0	WATER BASED	22.06.1986
2265	1.30	21.0	9.0	WATER BASED	24.06.1986
2265	1.20	26.0	12.4	WATER BASED	22.06.1986
2265	1.25	19.0	9.0	WATER BASED	23.06.1986
2265	1.30	2.1	9.0	WATER BASED	25.06.1986
2280	1.30	21.0	9.0	WATER BASED	29.06.1986



2500	1.35	17.0	6.5	OIL BASED	29.06.1986
2795	1.35	17.0	13.0	OIL BASED	30.06.1986
3182	1.47	21.0	7.0	OIL BASED	01.07.1986
3329	1.50	19.0	8.0	OIL BASED	02.07.1986
3395	1.50	21.0	7.5	OIL BASED	03.07.1986
3426	1.50	20.0	7.0	OIL BASED	06.07.1986
3427	1.58	24.0	9.1	OIL BASED	04.08.1986
3468	1.50	20.0	9.0	OIL BASED	09.07.1986
3468	1.50	20.0	9.5	OIL BASED	10.07.1986
3474	1.50	22.0	9.0	OIL BASED	06.07.1986
3484	1.50	21.0	8.5	OIL BASED	06.07.1986
3484	1.50	20.0	10.0	OIL BASED	08.07.1986
3484	1.50	20.0	10.0	OIL BASED	07.07.1986
3507	1.50	20.0	9.5	OIL BASED	14.07.1986
3522	1.60	14.0	13.0	OIL BASED	09.09.1986
3522	1.60	14.0	13.0	OIL BASED	11.09.1986
3525	1.51	19.0	9.0	OIL BASED	14.07.1986
3543	1.51	19.0	9.0	OIL BASED	14.07.1986
3561	1.46	16.0	9.0	OIL BASED	14.07.1986
3600	1.59	6.0	27.0	OIL BASED	09.09.1986
3600	1.60	14.0	13.0	OIL BASED	09.09.1986
3613	1.46	20.0	7.0	OIL BASED	15.07.1986
3613	1.46	18.0	8.0	OIL BASED	16.07.1986
3672	1.46	19.0	8.0	OIL BASED	17.07.1986
3685	1.55	17.0	7.7	OIL BASED	21.07.1986
3715	1.55	17.0	7.7	OIL BASED	21.07.1986
3728	1.56	18.0	8.6	OIL BASED	21.07.1986
3750	1.59	32.0	8.0	OIL BASED	26.08.1986
3794	1.56	19.0	9.0	OIL BASED	21.07.1986
3883	1.56	18.0	7.7	OIL BASED	22.07.1986
3900	1.59	22.0	8.0	OIL BASED	11.08.1986
3916	1.59	22.0	8.0	OIL BASED	11.08.1986
3916	1.59	22.0	8.0	OIL BASED	12.08.1986
3917	1.59	22.0	8.0	OIL BASED	11.08.1986
3928	1.56	18.0	8.6	OIL BASED	23.07.1986
3928	1.56	19.0	8.6	OIL BASED	24.07.1986
3999	1.56	24.0	10.5	OIL BASED	28.07.1986
4054	1.56	24.0	9.1	OIL BASED	28.07.1986
4172	1.56	24.0	9.1	OIL BASED	28.07.1986
4298	1.58	24.0	10.5	OIL BASED	30.07.1986



4384	1.58	24.0	9.6	OIL BASED	30.07.1986
4385	1.58	24.0	9.6	OIL BASED	31.07.1986
4385	1.58	24.0	9.6	OIL BASED	01.08.1986
4427	1.58	24.0	9.1	OIL BASED	04.08.1986
4427	1.58	24.0	9.1	OIL BASED	05.08.1986
4427	1.58	24.0	8.1	OIL BASED	04.08.1986
4427	1.59	22.0	7.6	OIL BASED	06.08.1986
4427	1.59	22.0	7.6	OIL BASED	07.08.1986
4427	1.59	22.0	7.6	OIL BASED	08.08.1986

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
3546.25	[m]
3535.80	[m]
3536.00	[m]
3532.60	[m]
3525.40	[m]
3527.60	[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]
904 Formation pressure (Formasjonstrykk)	pdf	0.22

