

**General information**

Wellbore name	2/1-5
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	2/1-5
Seismic location	BP 019 - 80 - 61A SP 1367
Production licence	019 B
Drilling operator	BP Norway Limited U.A.
Drill permit	353-L
Drilling facility	SEDCO 707
Drilling days	144
Entered date	13.11.1982
Completed date	05.04.1983
Release date	05.04.1985
Publication date	12.03.2011
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	ULA FM
Kelly bushing elevation [m]	24.0
Water depth [m]	66.0
Total depth (MD) [m RKB]	4454.0
Final vertical depth (TVD) [m RKB]	4454.0
Maximum inclination [°]	9
Bottom hole temperature [°C]	157
Oldest penetrated age	MIDDLE JURASSIC
Oldest penetrated formation	BRYNE FM
Geodetic datum	ED50
NS degrees	56° 47' 54.06" N
EW degrees	3° 12' 21.39" E
NS UTM [m]	6295099.08
EW UTM [m]	512578.71
UTM zone	31
NPDID wellbore	63



Wellbore history

General

Well 2/1-5 was drilled on the Cod Terrace of the Central Graben in the southern North Sea. The primary objective was test a Late Jurassic sandstone prospect on the south side of a large, central salt culmination in block 2/1. The prospect was developed by analogy with the 2/1-3 oil discovery (Gyda) on the north-western slope of the same salt high. There, the reservoir is a 60 to 90 m thick sand within the Farsund formation, with closure formed primarily by pinch out/truncation beneath the Mandal Formation on lapping on the central salt high. Secondary objectives were possible deeper reservoirs such as the Ula and Bryne Formations and the Triassic down to top salt.

Operations and results

Wildcat well 2/1-5 was spudded with the semi-submersible installation Sedco 707 on 13 November 1982 and drilled to TD at 4454 m. In the Cretaceous sequence the string got stuck and the well had to be sidetracked from 2882 m. After a drilling break at 4186 m an oil kick occurred with 21.5 m influx and oil appearing in the mud. RFT measurements in sandstone units below the oil kick showed pore pressures on a gradient equivalent to a mud weight of 2.10 g/cm. This gave little margin for safe onward drilling to Top Salt and the well was terminated in dark, carbonaceous mudstone of uncertain, possibly Early Jurassic age. The well was drilled with seawater/gel down to 635 m, with gypsum/lignosulfonate mud from 635 m to 3830 m, and with Lignosulphonate/lignite mud from 3830 m to TD.

Well 2/1-5 reached the Base Cretaceous Unconformity and the "Hot shale" at 3882 m as predicted. Coring was initiated when traces of sand were observed near the predicted "top reservoir", but only dark, carbonaceous mudstone/siltstone was recovered. In total, 300 metres of mudstone/siltstone were then drilled without any clear trace of the expected equivalent of the 2/1-3 reservoir sandstone. Then, at 4193 m a porous, highly over pressured sandstone unit was penetrated, causing an oil kick and creating new hope for the prospect. However, the thickness of this oil sand was only 6 m, rendering it uneconomic as a single productive reservoir zone. The sand is classified as Ula formation. Several thin bands of sandstones occur within the mudstone sequence below the "kick sand", but these were all well cemented and thus unproductive. Oil shows were seen in sidewall cores in these bands of cemented sandstone down to as deep as 4300 m.

One core was cut from 3929.0 to 3946.3 m in the Farsund Formation. The RFT tool was run on wire line for pressure sampling, but no fluid samples were taken.

The well was permanently abandoned on 5 April 1983 as a minor oil discovery.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate



Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
180.00	4454.00

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	3928.9	3947.3	[m]

Total core sample length [m]	18.4
Cores available for sampling?	YES

Core photos



3928-3934m



3935-3941m



3942-3947m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
4202.0	[m]	DC	SAGA
4226.0	[m]	DC	SAGA
4253.0	[m]	DC	SAGA
4280.0	[m]	DC	SAGA
4316.0	[m]	DC	SAGA
4337.0	[m]	DC	SAGA
4370.0	[m]	DC	SAGA
4391.0	[m]	DC	SAGA
4415.0	[m]	DC	SAGA
4439.0	[m]	DC	SAGA
4454.0	[m]	DC	SAGA

**Lithostratigraphy**

Top depth [mMD RKB]	Lithostrat. unit
90	NORDLAND GP
1785	HORDALAND GP
2886	ROGALAND GP
2886	BALDER FM
2907	SELE FM
2929	FORTIES FM
2961	LISTA FM
3002	VIDAR FM
3101	VÅLE FM
3136	SHETLAND GP
3136	EKOFISK FM
3237	TOR FM
3597	HOD FM
3741	BLODØKS FM
3758	HIDRA FM
3768	CROMER KNOLL GP
3768	RØDBY FM
3790	SOLA FM
3797	TUXEN FM
3833	ÅSGARD FM
3882	TYNE GP
3882	MANDAL FM
3914	FARSUND FM
4053	HAUGESUND FM
4193	VESTLAND GP
4193	ULA FM
4199	BRYNE FM

Composite logs

Document name	Document format	Document size [MB]
63	pdf	0.77





Geochemical information

Document name	Document format	Document size [MB]
63_1	pdf	1.20

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

Document name	Document format	Document size [MB]
63_01_WDSS_General_Information	pdf	0.17
63_02_WDSS_completion_log	pdf	0.42

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

Document name	Document format	Document size [MB]
63_2_1_5_Completion_Report	pdf	17.09

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL	550	800
CBL VDL	1750	2050
CST GR	3900	4100
CST GR	4090	4300
CST GR	4130	4210
CST GR	4210	4458
DLL MSFL GR SP CAL	4150	4453
HDT	3821	4217
HDT	3821	4180
HDT	3821	4458
ISF BHC GR SP	162	635
ISF BHC GR SP	3830	4217
ISF BHC MSFL GR SP CAL	626	3830
ISF BHC MSFL GR SP CAL	4218	4457
LDL CNL NGS GR CAL	3821	4457
RFT GR	4194	4374





RFT GR	4195	4214
RFT GR	4200	4200

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	161.0	36	167.0	0.00	LOT
SURF.COND.	18 5/8	625.0	24	635.0	1.58	LOT
INTERM.	13 3/8	2001.0	17 1/2	2008.0	1.86	LOT
INTERM.	9 5/8	3817.0	12 1/4	3830.0	2.13	LOT
OPEN HOLE		4454.0	8 3/8	4454.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
650	1.20	35.0		WATERBASED	
1010	1.28	45.0		WATERBASED	
1380	1.45	72.0		WATERBASED	
2030	1.51	56.0		WATERBASED	
2940	1.68	54.0		WATERBASED	
4450	2.13	67.0		WATERBASED	

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]
63 Formation pressure (Formasjonstrykk)	PDF	0.21

