



General information

Wellbore name	2/4-22 S
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	FENRIS
Discovery	2/4-22 S (Romeo)
Well name	2/4-22
Seismic location	Inline: 7738 - Xline:19082 - 3D survey: VGCNS05Z12
Production licence	146
Drilling operator	Statoil Petroleum AS
Drill permit	1537-L
Drilling facility	MÆRSK GALLANT
Drilling days	166
Entered date	10.09.2014
Completed date	22.02.2015
Plugged and abandon date	22.02.2015
Release date	22.02.2017
Publication date	22.02.2017
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	PERMIAN
1st level with HC, formation	ROTLIEGEND GP
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	BRYNE FM
3rd level with HC, age	LATE JURASSIC
3rd level with HC, formation	ULA FM
Kelly bushing elevation [m]	48.0
Water depth [m]	67.0
Total depth (MD) [m RKB]	4889.0
Final vertical depth (TVD) [m RKB]	4882.0
Maximum inclination [°]	5.3
Bottom hole temperature [°C]	173
Oldest penetrated age	PERMIAN



Oldest penetrated formation	ROTLIEGEND GP
Geodetic datum	ED50
NS degrees	56° 42' 58.2" N
EW degrees	3° 10' 2.98" E
NS UTM [m]	6285944.41
EW UTM [m]	510252.77
UTM zone	31
NPDID wellbore	7535

Wellbore history

General

Well 2/4-22 S was drilled to test the Romeo on the Hydra High adjacent to the King Lear discovery in the North Sea. The primary objective was to prove commercial accumulations of recoverable hydrocarbons within Sandstone of the Rotliegendes Group.

Operations and results

Wildcat well 2/4-22 S was spudded with the jack-up installation Mærsk Galant on 10 September 2014 and drilled to TD at 4889 m in the Permian Rotliegendes Group. The 8 1/2" section was drilled under HPHT procedures. No significant problem was encountered in the operations. The well was drilled with seawater down to 298 m, with Glydril mud from 298 m to 1001 m, with Versatec oil based mud from 1001 m to 4358 m, and with WARP oil based mud from 4358 m to TD.

Hydrocarbons were found in the Jurassic Ula and Bryne Formations and in the Permian Rotliegendes Group, Auk Formation Equivalent. The hydrocarbons in all reservoir correspond to light oil (density of 0.6 g/cm³). Two source rock sequences are penetrated in the well: the Late Jurassic Mandal-Farsund formations and high-TOC carbonaceous shales of the Bryne Formation. No Triassic rocks were seen in the well. No oil shows above the oil based mud were recorded. High gas response was recorded when drilling the organic rich shales in the Mandal and Farsund formations.

No cores were cut in the well. Formation fluid samples were acquired in the reservoir using the MDT. Depth correlation and sampling operations were difficult due to the well conditions and failure of the hydraulic units in the MDT strings. Oil was sampled at 4628 m, 4630.8 m and 4678.5 m. Water was sampled at 4875.6 m.

The well was permanently abandoned on 22 February 2015 as an 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]
310.00	4889.50



Cuttings available for sampling?	YES
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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
MDT		0.00	0.00	OIL		YES
MDT		0.00	0.00	OIL		YES
MDT		0.00	0.00	OIL		YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
115	NORDLAND GP
115	UNDIFFERENTIATED
1790	HORDALAND GP
1790	UNDIFFERENTIATED
3065	ROGALAND GP
3065	BALDER FM
3074	SELE FM
3100	LISTA FM
3147	VIDAR FM
3267	LISTA FM
3286	SHETLAND GP
3286	EKOFISK FM
3405	TOR FM
3842	HOD FM
4237	CROMER KNOLL GP
4237	RØDBY FM
4263	TUXEN FM
4304	ÅSGARD FM
4419	TYNE GP
4419	MANDAL FM
4430	FARSUND FM
4543	HAUGESUND FM
4567	VESTLAND GP



4567	ULA FM
4622	BRYNE FM
4743	ZECHSTEIN GP
4830	ROTLIEGEND GP
4830	NO FORMAL NAME

Logs

Log type	Log top depth [m]	Log bottom depth [m]
ABG EWR - P4 DGR PWD DIR	1001	3411
CBL USIT	3485	4247
DGR EWR - P4 PWD DIR	298	1001
DGR EWR - P4 PWD DIR	3411	4358
DGR EWR - P4 PWD GEOTAP ALD CTN	4362	4826
DGR EWR - P4 PWD GEOTAP DIR	0	0
GR CMR	4536	4885
GR MDT	4600	4872
GR MDT IFA MRMS	4596	4710
GR MDT IFA MRMS	4628	4680
GR MDT IFA MRMS	4678	4875
GR MDT IFA MRMS	4830	4874
GR VSP	2437	4890
GR XLROCK	4625	4846
HLDS APS ECS GR	4350	4890
QAIT ILE DOBMI PPC MSIP PPC	4300	4889
USIT CBL	900	3297

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	289.1	36	298.0	1.20	FIT
SURF.COND.	20	454.4	24	467.0	1.40	FIT
LINER	16	1001.0	20	1001.0	1.68	FIT
		1001.0		1001.0	1.72	FIT
INTERM.	13 5/8	3312.0	17 1/2	3322.5	1.90	FIT
PROD.	9 7/8	4349.4	12 1/4	4358.0	2.25	FIT
		4349.4		4358.0	2.23	FIT



		4349.5		4358.0	2.15	LOT
OPEN HOLE		4889.5	8 1/2	4889.5	0.00	

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
0	1.45	25.0		Glydril	
0	2.04	52.0		WARP (Oil Based)	
152	1.62	40.0		Versatec	
298	1.45	25.0		Glydril	
304	1.54	38.0		Versatec	
306	1.10	11.0		Glydril	
318	1.54	38.0		Versatec	
325	1.10	12.0		Glydril	
367	1.53	40.0		Versatec	
375	1.13	18.0		Glydril	
430	1.10	14.0		Glydril	
460	1.20	15.0		Glydril	
637	1.15	13.0		Glydril	
1000	1.18	12.0		Glydril	
1867	1.66	51.0		Versatec	
2591	1.66	62.0		Versatec	
3018	1.66	50.0		Versatec	
4080	1.72	43.0		Versatec	
4200	2.04	44.0		WARP (Oil Based)	
4220	1.50	28.0		Versatec	
4230	2.04	40.0		WARP (Oil Based)	
4263	1.75	42.0		Versatec	
4291	2.02	45.0		WARP (Oil Based)	
4318	1.75	44.0		Versatec	
4319	2.02	42.0		WARP (Oil Based)	
4358	1.79	44.0		Versatec	
4358	2.04	45.0		Versatec	
4358	1.58	25.0		Versatec	
4400	2.06	44.0		WARP (Oil Based)	
4768	2.02	39.0		WARP (Oil Based)	
4804	2.16	37.0		WARP (Oil Based)	
4826	2.08	32.0		WARP (Oil Based)	



4837	2.02	37.0		WARP (Oil Based)	
4889	2.04	40.0		WARP (Oil Based)	
4890	2.06	28.0		WARP (Oil Based)	