General information

Wellbore name	2/2-4
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Discovery	2/2-1 (Møyfrid)
Well name	2/2-4
Seismic location	SG 8652 - 102 SP. 218
Production licence	066
Drilling operator	Saga Petroleum ASA
Drill permit	574-L
Drilling facility	TREASURE SAGA
Drilling days	53
Entered date	16.04.1988
Completed date	07.06.1988
Release date	07.06.1990
Publication date	02.03.2004
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS
Discovery wellbore	NO
1st level with HC, age	OLIGOCENE
1st level with HC, formation	VADE FM
Kelly bushing elevation [m]	26.0
Water depth [m]	59.0
Total depth (MD) [m RKB]	4020.0
Final vertical depth (TVD) [m RKB]	4017.5
Maximum inclination [°]	4.4
Bottom hole temperature [°C]	138
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	SMITH BANK FM
Geodetic datum	ED50
NS degrees	56° 47' 40.88'' N
EW degrees	3° 39' 34.46'' E
NS UTM [m]	6294866.66
EW UTM [m]	540289.63
UTM zone	31
NPDID wellbore	1188

Wellbore history

General

Well 2/2-4 was drilled on the northern segment of the Alpha structure in the southeastern corner of block 2/2 on the northeastern flank of the Central Graben in the Ula-Gyda Fault zone. The structure is a salt induced dome in an area exposed to extensional tectonism where rollover mechanism may have influenced the final structure. The southern segment well 2/2-1, separated from the northern by a normal fault, proved gas in Oligocene and oil in Late Jurassic sandstones.

The main objective of the well was to test the reservoir potential of Late Jurassic Ula Sandstone and to test a possible communication with the Alpha South structure. If hydrocarbon bearing, the objective was to prove an oil column thick enough for commercial exploitation of the Alpha structure.

Operations and results

Wildcat well 2/2-4 was spudded with Wilh. Wilhelmsen semi-submersible rig Treasure Saga on16 April 1988 and drilled to TD at 4020 m in the Triassic Smith Bank Formation. The well was drilled with spud mud down to 915 m, with KCl mud from 915 m to 3310 m, and with gel mud from 3310 m to TD. It was drilled down to top Jurassic and 9 5/8" casing was set.

Oligocene came in at 2084 m with sand with small amounts of gas. Eight pressure points in the interval gave a water gradient of 1.0 g/cc and a gas gradient of 0.21 g/cc. The gas/water contact was defined at 2110.5 m, the same as in 2/2-1. Estimated porosity from logs was max. 27%. The main target Ula reservoir was encountered at 3324 m, but was found water wet. Only residual oil was found in the uppermost part of the Ula sandstone and in siltstone of the Bryne Formation. No cores were cut. One FMT segregated sample recovered gas from 2109 m in Oligocene. The gas was very dry with 97% methane. The well was abandoned on 7 June 1988 as a gas appraisal well.

Testing

No drill stem test was performed

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
210.00	4019.00

Cuttings available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
2120.0	[m]	DC	RRI
2160.0	[m]	DC	RRI

2180.0	[m]	DC	RRI
2197.0	[m]	SWC	RRI
2220.0	[m]	DC	RRI
2240.0	[m]	DC	RRI
2260.0	[m]	DC	RRI
2279.0	[m]	SWC	RRI
2300.0	[m]	DC	RRI
2320.0	[m]	DC	RRI
2660.0	[m]	DC	RRI
2690.0	[m]	DC	RRI
3218.0	[m]	SWC	RRI
3225.0	[m]	DC	RRI
3235.0	[m]	DC	RRI
3317.0	[m]	DC	RRI
3335.0	[m]	DC	RRI
3416.0	[m]	DC	RRI
3435.0	[m]	DC	RRI
3446.0	[m]	DC	RRI
3476.0	[m]	DC	RRI
3485.0	[m]	DC	RRI
3494.0	[m]	DC	RRI
3506.0	[m]	DC	RRI
3515.0	[m]	DC	RRI
3524.0	[m]	DC	RRI
3545.0	[m]	DC	RRI
3554.0	[m]	DC	RRI
3566.0	[m]	DC	RRI
3575.0	[m]	DC	RRI
3584.0	[m]	DC	RRI
3605.0	[m]	DC	RRI
3614.0	[m]	DC	RRI
3626.0	[m]	DC	RRI
3635.0	[m]	DC	RRI
3644.0	[m]	DC	RRI
3656.0	[m]	DC	RRI
3665.0	[m]	DC	RRI
3674.0	[m]	DC	RRI
3680.0	[m]	DC	RRI
3695.0	[m]	DC	RRI
3704.0	[m]	DC	RRI

3725.0	[m]	DC	RRI
3734.0	[m]	DC	RRI
3755.0	[m]	DC	RRI
3785.0	[m]	DC	RRI
3806.0	[m]	DC	RRI
3815.0	[m]	DC	RRI
3824.0	[m]	DC	RRI
3836.0	[m]	DC	RRI
3875.0	[m]	DC	RRI
3884.0	[m]	DC	RRI
3908.0	[m]	DC	GEUS
3911.0	[m]	DC	GEUS
3914.0	[m]	DC	RRI
3917.0	[m]	DC	GEUS
3920.0	[m]	DC	GEUS
3923.0	[m]	DC	GEUS
3926.0	[m]	DC	RRI
3935.0	[m]	DC	RRI
3944.0	[m]	DC	RRI
3968.0	[m]	DC	RRI
3986.0	[m]	DC	RRI
4016.0	[m]	DC	RRI

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
85	NORDLAND GP
1574	HORDALAND GP
2086	VADE FM
2184	NO FORMAL NAME
2666	ROGALAND GP
2666	BALDER FM
2684	SELE FM
2698	LISTA FM
2777	MAUREEN FM
2826	SHETLAND GP
2826	EKOFISK FM
2847	TOR FM
3135	HOD FM

3213	CROMER KNOLL GP
3213	ÅSGARD FM
3308	TYNE GP
3308	MANDAL FM
3313	FARSUND FM
3324	VESTLAND GP
3324	ULA FM
3902	BRYNE FM
3969	NO GROUP DEFINED
3969	SMITH BANK FM

Composite logs

Document name	Document format	Document size [MB]
1188	pdf	0.87

Geochemical information

Document name	Document format	Document size [MB]
1188_1	pdf	1.80

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

Document name	Document format	Document size [MB]
1188_01_WDSS_General_Information	pdf	0.31
1188_02_WDSS_completion_log	pdf	0.26

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

Document name	Document format	Document size [MB]
1188_2_2_4_COMPLETION_REPORT_AND_LOG	pdf	12.39

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CDL CNL GR	2304	3309
CDL CNL GR	2304	3309
CDL CNL GR	3295	4020
CDL CNL LS BHC GR	898	2296
COREGUN	0	0
COREGUN	0	0
COREGUN	0	0
DIFL LS BHC GR	2304	3310
DIFL LS BHC GR	3265	4020
DIPLOG	2304	3309
DIPLOG	3300	4020
DLL MLL GR	898	2298
FMT	2086	2177
FMT	3327	3868
FMT	3327	3868
MWD - GR RES DEV	207	4020
VSP	2000	4020

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	207.0	36	207.0	0.00	LOT
SURF.COND.	20	897.0	26	915.0	1.65	LOT
INTERM.	13 3/8	2304.0	17 1/2	2319.0	1.77	LOT
INTERM.	9 5/8	3295.0	12 1/4	3321.0	2.04	LOT
OPEN HOLE		4020.0	8 1/2	4020.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
120	1.46	15.0	4.4	WATER BASED	07.06.1988
123	1.05			WATER BASED	18.04.1988
207	1.05	4.0	13.0	WATER BASED	19.04.1988
400	1.13	4.0	12.0	WATER BASED	20.04.1988

770	1.12	4.0	12.0	WATER BASED	22.04.1988
915	1.12	5.0	10.1	WATER BASED	22.04.1988
915	1.15			WATER BASED	27.04.1988
915	1.15	4.0	9.6	WATER BASED	27.04.1988
1060	1.16	20.0	8.7	WATER BASED	27.04.1988
1405	1.23	22.0	9.1	WATER BASED	27.04.1988
1730	1.40	24.0	7.7	WATER BASED	28.04.1988
1764	1.42	31.0	7.7	WATER BASED	29.04.1988
1925	1.42	29.0	6.8	WATER BASED	02.05.1988
2035	1.42	26.0	6.3	WATER BASED	02.05.1988
2064	1.42	27.0	5.8	WATER BASED	02.05.1988
2209	1.42	24.0	5.3	WATER BASED	03.05.1988
2245	1.42	23.0	5.8	WATER BASED	04.05.1988
2319	1.42	17.0	3.9	WATER BASED	06.05.1988
2319	1.42	17.0	3.9	WATER BASED	09.05.1988
2319	1.42	18.0	3.9	WATER BASED	05.05.1988
2319	1.42	16.0	4.4	WATER BASED	09.05.1988
2450	1.42	17.0	5.3	WATER BASED	10.05.1988
2598	1.45	21.0	7.2	WATER BASED	13.05.1988
2703	1.45	18.0	7.7	WATER BASED	13.05.1988
2793	1.45	16.0	4.8	WATER BASED	16.05.1988
2793	1.45	19.0	7.7	WATER BASED	13.05.1988
2932	1.50	15.0	4.8	WATER BASED	16.05.1988
3086	1.50	15.0	4.8	WATER BASED	16.05.1988
3100	1.52	20.0	5.3	WATER BASED	24.05.1988
3100	1.52	21.0	5.8	WATER BASED	24.05.1988
3100	1.52	22.0	4.8	WATER BASED	24.05.1988
3146	1.46	15.0	4.4	WATER BASED	07.06.1988
3157	1.50	16.0	4.4	WATER BASED	18.05.1988
3177	1.50	16.0	4.4	WATER BASED	18.05.1988
3226	1.52	18.0	6.3	WATER BASED	19.05.1988
3283	1.52	19.0	5.3	WATER BASED	20.05.1988
3310	1.52	21.0	5.8	WATER BASED	24.05.1988
3321	1.48	15.0	5.3	WATER BASED	25.05.1988
3538	1.48	22.0	6.3	WATER BASED	26.05.1988
3709	1.48	30.0	8.2	WATER BASED	30.05.1988
3859	1.48	32.0	8.2	WATER BASED	30.05.1988
3902	1.48	32.0	9.1	WATER BASED	30.05.1988
4009	1.48	29.0	7.2	WATER BASED	30.05.1988
4020	1.48	23.0	5.3	WATER BASED	31.05.1988

4020	1.48	22.0	6.3	WATER BASED	01.06.1988
4020	1.48	22.0	6.3	WATER BASED	02.06.1988
4020	1.46	21.0	6.3	WATER BASED	03.06.1988
4020	1.46	17.0	4.4	WATER BASED	07.06.1988
4020	1.46	20.0	5.3	WATER BASED	07.06.1988

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]
1188_Formation_pressure_(Formasjonstrykk)	pdf	0.22