General information

Wellbore name	2/9-4
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	2/9-4
Seismic location	inline 1137 & trace 1385
Production licence	273
Drilling operator	ConocoPhillips Skandinavia AS
Drill permit	1177-L
Drilling facility	MÆRSK GALLANT
Drilling days	107
Entered date	20.03.2008
Completed date	04.07.2008
Release date	04.07.2010
Publication date	01.08.2010
Purpose - planned	WILDCAT
Reentry	NO
Content	DRY
Discovery wellbore	NO
Kelly bushing elevation [m]	45.0
Water depth [m]	70.0
Total depth (MD) [m RKB]	5500.0
Final vertical depth (TVD) [m RKB]	5489.0
Maximum inclination [°]	6.9
Bottom hole temperature [°C]	158
Oldest penetrated age	EARLY PERMIAN
Oldest penetrated formation	ROTLIEGEND GP
Geodetic datum	ED50
NS degrees	56° 16' 28.89'' N
EW degrees	3° 48' 45.95'' E
NS UTM [m]	6237087.88
EW UTM [m]	550332.01
UTM zone	31
NPDID wellbore	5801

Wellbore history

General

The 2/9-4 Trane well is located on the Piggvar Terrace in the Norwegian Sector of the Danish-Norwegian Basin in

the North Sea. The target prospect was seen as a continuation of the recent Danish sector Hejre discovery structural trend and reservoir/trap system and the sole objective of the well was to explore the hydrocarbon potential of the Jurassic J62 Heno Formation (Gert Member Sandstone) prospect. The 2/9-4 well location was planned to be approximately 10 km from the Danish sector Hejre-2 well location. The Trane well was planned as a near-vertical HPHT well with a prognosed TD at 5512 m or when sufficient rat hole was drilled below the base of the Karl Volcanics to allow testing in the discovery case and full coverage logging in the wet case.

Operations and results

Wildcat well 2/9-4 was spudded with the jack-up installation Mærsk Galant on 20 March 2008 and drilled to TD at 5500 m in volcanic rocks within the Permian Rotliegend Group. An apparent influx into the wellbore was observed while drilling at 5056 m with 16.9ppg MW and required an increase in MW to 17.0 ppg to allow drilling to continue. The ECD immediately prior to this "influx" had been 17.2 ppg and the influx was thought to have been caused by gas expansion near surface after drilling into a gas pocket trapped beneath a thin dolomitic limestone stringer. A flow check at 5116 m due to high drilled gas levels in the mud showed the well was flowing at 14bbl/hr with a MW of 17.4ppg. The well required 17.7 ppg MW to return to a static condition. The Pore Pressure through this section was significantly higher than the pre-drill estimate and appeared to indicate that the Trane structure represented an isolated block with a different structural and pressure history to the adjacent Hejre structure. Losses of 26 bbl/hr were noted at 5475 m and were cured after pumping and soaking 2 LCM pills. Drilling continued to TD without further incident. The well was drilled with sea water and hi-vis pills down to 203 m, with spud mud from 203 m to 1007 m, with Glydril mud from 1007 m to 2495 m, with Paratherm oil based mud from 2495 m to 2715.5 m, and with WARP oil based mud from 2715.5 m to TD.

No reservoir quality sands were developed at any level below Miocene level. The Gert Member Sandstone objective was absent. The oil-based muds used as the drilling fluids for the entire well below the 20" shoe at 1002.1 m, made

shows identification difficult. No shows that could be distinguished from the OBM were observed.

Wire line logging runs gave a bottom hole maximum temperature of 156 deg C with Horner plot corrections suggesting a maximum static down hole temperature at TD of 158 deg C.

No cores were cut and no wire line fluid samples were taken.

The well was permanently abandoned on 4 July 2008 as a dry well.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
200.00	5500.00

Cuttings available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
115	NORDLAND GP
1616	HORDALAND GP
3093	ROGALAND GP
3093	BALDER FM
3105	SELE FM
3154	LISTA FM
3204	VÅLE FM
3218	SHETLAND GP
3218	EKOFISK FM
3336	TOR FM
3858	HOD FM
4082	CROMER KNOLL GP
4082	RØDBY FM
4175	SOLA FM
4259	TUXEN FM
4323	ÅSGARD FM
4698	TYNE GP
4698	FARSUND FM
5450	ROTLIEGEND GP

Logs

Log type	Log top depth [m]	Log bottom depth [m]
DSL ORIT XMAC HDIL CN ZDL	115	5493
GR VSP	800	5485
MWD LWD - DGR	1007	2510
MWD LWD - EWR PWD	2500	4715
MWD LWD - GR EWR PWD	4715	5500
MWD LWD - PWD	115	1007

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	195.0	36	203.0	0.00	LOT
SURF.COND.	20	1002.0	26	1007.0	1.74	LOT
INTERM.	13 5/8	2499.0	17 1/2	2510.0	1.89	LOT
INTERM.	9 7/8	4710.0	12 1/4	4715.0	2.19	LOT
OPEN HOLE		5500.0	8 1/2	5500.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
300	1.16	4.0		water based	
500	1.14	7.0		water based	
596	1.13	6.0		water based	
895	1.18	5.0		water based	
1005	1.14	6.0		water based	
1007	1.60	32.0		water based	
1007	1.13	6.0		water based	
1225	1.60	31.0		water based	
1742	1.60	32.0		water based	
2252	1.60	38.0		water based	
2510	1.62	34.0		water based	
2922	1.65	40.0		oil based	
3252	1.65	38.0		oil based	
3540	1.65	35.0		oil based	
3650	1.65	37.0		oil based	
3730	1.65	33.0		oil based	
3819	1.65	35.0		oil based	
3941	1.65	37.0		oil based	
3994	1.65	35.0		oil based	
4045	1.74	39.0		oil based	
4076	1.74	38.0		oil based	
4139	1.74	35.0		oil based	
4187	1.74	39.0		oil based	
4223	1.74	40.0		oil based	

4346	1.74	38.0		oil based	
4470	1.74	44.0		oil based	
4568	1.74	46.0		oil based	
4635	1.74	43.0		oil based	
4685	1.74	42.0		oil based	
4716	2.00	47.0		oil based	
4716	2.00	45.0		oil based	
4716	1.74	43.0		oil based	
4716	1.74	42.0		oil based	
4750	2.00	43.0		oil based	
4811	2.00	42.0		oil based	
4878	2.00	39.0		oil based	
4946	2.00	41.0		oil based	
4988	0.20	45.0		oil based	
5026	2.00	48.0		oil based	
5034	2.00	45.0		oil based	
5056	2.03	45.0		oil based	
5117	2.10	52.0		oil based	
5184	2.12	61.0		oil based	
5223	2.12	61.0		oil based	
5297	2.12	58.0		oil based	
5343	2.12	63.0		oil based	
5384	2.12	66.0		oil based	
5500	2.12	58.0		oil based	