



Generell informasjon

Brønnbane navn	9/4-5
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Brønn navn	9/4-5
Seismisk lokalisering	NSR04-42232 2D Surveu- shot point 2900
Utvinningstillatelse	315
Boreoperatør	ExxonMobil Exploration and Production Norway AS
Boretillatelse	1097-L
Boreinnretning	MÆRSK GALLANT
Boredager	206
Borestart	08.01.2006
Boreslutt	01.08.2006
Frigitt dato	01.08.2008
Publiseringsdato	15.08.2008
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	DRY
Funnbrønnbane	NO
Avstand, boredekk - midlere havflate [m]	44.0
Vanndybde ved midlere havflate [m]	77.0
Totalt målt dybde (MD) [m RKB]	5881.0
Totalt vertikalt dybde (TVD) [m RKB]	5874.0
Maks inklinasjon [°]	8.5
Temperatur ved bunn av brønnbanen [°C]	150
Eldste penetrerte alder	CARBONIFEROUS
Eldste penetrerte formasjon	NO FORMAL NAME
Geodetisk datum	ED50
NS grader	57° 40' 38.91" N
ØV grader	4° 16' 8.37" E
NS UTM [m]	6393656.30



ØV UTM [m]	575683.43
UTM sone	31
NPDID for brønnbanen	5134

Brønnhistorie

Well is located in the Egersund Basin south-west of the Yme field in the North Sea. The main target for the well was a faulted four way anticlinal structure (rotated fault block) with Late Permian Rotliegendes sandstones at a prognosed depth of 5134 m. About 400 m of Rotliegendes sandstone was expected. The objective was to test the hydrocarbon potential in this structure. Dry gas was expected. The key risks were the Palaeozoic source, reservoir adequacy, and top seal. The well should TD just below the base Rotliegendes (Saalian Unconformity) to obtain full stratigraphic and lithological control for the Rotliegendes.

Operations and results

Well 9/4-5 was spudded with the jack-up installation Mærsk Gallant on 6 January 2006 and drilled to TD at 5881 m (5874 m TVD RKB), 44 m into volcanic tuffs below the base of the Permian Rotliegendes Group. Rotliegendes drilling was very slow, about 1-2 m/hour. The well encountered a five meters thick halite bed at 5224 m, the base of the Zechstein in the 9 7/8" hole. On several bit trips in and out of the hole, the halite was seen slowly moving into the well, giving some problems coming into the well and pulling out of hole, most of the times this interval needed to be reamed. When drilling at 5503 m with 13 ppg mud weight, a salt water kick occurred. ECD at this time was 13.7 ppg. The mud weight was gradually increased to 15.5 ppg to stop the salt water influx into the well. The well was drilled with seawater and hi-vis sweeps down to 605 m, with Glydril mud containing 3% glycol from 605 m to 2534 m, and with Paratherm oil based mud containing alkanes mainly in the range C12-C18 from 2534 m to TD.

The well encountered Top Rotliegendes at 5278.5 m (5272 m TVD RKB), 138 m deep to prognosis. The total Rotliegendes was 559 m thick, consisting of about 500 m of tight sandstones and conglomerates. A few meters of the sandstone beds had porosity up to about 8%. These porous beds were water wet. The lowest part of the Rotliegendes consists of 60 m with brown to red clay stones, with a sharp log contact to varicoloured tuffs. The well was dry. Apart from some elevated gas in the Tau formation only background gas was encountered and frequent fluorescence observed in deeper parts of the well, in the reservoir section, was due to the base oil in the mud. Post-well organic geochemical analyses confirmed this picture. Vitrinite reflection analyses (%Ro) proved an immature well down to ca 2600 m where %Ro exceeded 0.5.

Two cores were cut in different reservoir facies in the Rotliegendes section, the first core showing grey tight sandstones and the second core, deeper down in the reservoir, showing red tight conglomerates and red sandstones with 8% porosity. Extensive wire line logging was done at TD, including Earth Imager, MREX (Magnetic Resonance), XMAC (Sonic), HDIL (Resistivity) and Check shots. Formation pressures and samples were attempted with the RCI Probe and RCI Straddle Packer tools. The fluid sampling failed. A number of long-time BHT's measured on wire line tools repeatedly gave maximum temperatures in the range 145 - 148 deg C. Horner correction gave a static temperature at final TD in the range 149 - 152 deg C.

The well was permanently abandoned on 1 August 2006 as a dry well.

Testing

No drill stem test was performed.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
607.00	5881.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	5294.7	5296.9	[m]
2	5535.2	5551.6	[m]

Total kjerneprøve lengde [m]	18.6
Kjerner tilgjengelig for prøvetaking?	YES

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
625.0	[m]	DC	FUGRO
661.0	[m]	DC	FUGRO
690.0	[m]	DC	FUGRO
771.0	[m]	DC	FUGRO
789.0	[m]	DC	FUGRO
807.0	[m]	DC	FUGRO
826.0	[m]	DC	FUGRO
853.0	[m]	DC	FUGRO
881.0	[m]	DC	FUGRO
900.0	[m]	DC	FUGRO
1045.0	[m]	DC	FUGRO
1100.0	[m]	DC	FUGRO
1128.0	[m]	DC	FUGRO
1183.0	[m]	DC	FUGRO
1247.0	[m]	DC	FUGRO
1265.0	[m]	DC	FUGRO
1311.0	[m]	DC	FUGRO
1366.0	[m]	DC	FUGRO



Faktasider

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1402.0	[m]	DC	FUGRO
1630.0	[m]	DC	FUGRO
1841.0	[m]	DC	FUGRO
1987.0	[m]	DC	FUGRO
2024.0	[m]	DC	FUGRO
2115.0	[m]	DC	FUGRO
2252.0	[m]	DC	FUGRO
2353.0	[m]	DC	FUGRO
2399.0	[m]	DC	FUGRO
2463.0	[m]	DC	FUGRO
2534.0	[m]	DC	FUGRO
2600.0	[m]	DC	FUGRO
2618.0	[m]	DC	FUGRO
2636.0	[m]	DC	FUGRO
2657.0	[m]	DC	FUGRO
2691.0	[m]	DC	FUGRO
2706.0	[m]	DC	FUGRO
2795.0	[m]	DC	FUGRO
2804.0	[m]	DC	FUGRO
2831.0	[m]	DC	FUGRO
2859.0	[m]	DC	FUGRO
2950.0	[m]	DC	FUGRO
3179.0	[m]	DC	FUGRO
3334.0	[m]	DC	FUGRO
3453.0	[m]	DC	FUGRO
3545.0	[m]	DC	FUGRO
3718.0	[m]	DC	FUGRO
3837.0	[m]	DC	FUGRO
4121.0	[m]	DC	FUGRO
4349.0	[m]	DC	FUGRO
4560.0	[m]	DC	FUGRO
4633.0	[m]	DC	FUGRO
4752.0	[m]	DC	FUGRO
4862.0	[m]	DC	FUGRO
4944.0	[m]	DC	FUGRO
5008.0	[m]	DC	FUGRO
5099.0	[m]	DC	FUGRO
5135.0	[m]	DC	FUGRO
5190.0	[m]	DC	FUGRO
5222.0	[m]	DC	FUGRO



5227.0 [m]	DC	FUGRO
5234.0 [m]	DC	FUGRO
5261.0 [m]	DC	FUGRO
5270.0 [m]	DC	FUGRO
5276.0 [m]	DC	FUGRO
5295.0 [m]	DC	FUGRO
5296.4 [m]	C	FUGRO
5296.7 [m]	C	FUGRO
5312.0 [m]	DC	FUGRO
5318.0 [m]	DC	FUGRO
5334.0 [m]	DC	FUGRO
5346.0 [m]	DC	FUGRO
5455.0 [m]	DC	FUGRO
5502.0 [m]	DC	FUGRO
5523.0 [m]	DC	FUGRO
5776.0 [m]	DC	FUGRO
5779.0 [m]	DC	FUGRO
5782.0 [m]	DC	FUGRO
5785.0 [m]	DC	FUGRO
5788.0 [m]	DC	FUGRO
5791.0 [m]	DC	FUGRO
5794.0 [m]	DC	FUGRO
5797.0 [m]	DC	FUGRO
5800.0 [m]	DC	FUGRO
5803.0 [m]	DC	FUGRO
5806.0 [m]	DC	FUGRO
5809.0 [m]	DC	FUGRO
5813.0 [m]	DC	FUGRO
5816.0 [m]	DC	FUGRO
5831.0 [m]	DC	FUGRO
5846.0 [m]	DC	FUGRO
5867.0 [m]	DC	FUGRO
5881.0 [m]	DC	FUGRO

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
121	NORDLAND GP
607	HORDALAND GP



1077	ROGALAND GP
1077	BALDER FM
1098	SELE FM
1134	LISTA FM
1210	VÅLE FM
1261	SHETLAND GP
1261	EKOFISK FM
1397	TOR FM
2006	CROMER KNOLL GP
2300	BOKNFJORD GP
2300	FLEKKEFJORD FM
2387	SAUDA FM
2603	TAU FM
2654	EGERSUND FM
2703	VESTLAND GP
2703	SANDNES FM
2783	BRYNE FM
2836	NO GROUP DEFINED
2836	SKAGERRAK FM
4638	SMITH BANK FM
5224	ZECHSTEIN GP
5279	ROTLIEGEND GP
5838	UNDEFINED GP

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
5134_01_9_4_5_gch_transfer_1	txt	0.00
5134_02_9_4_5_gch_results_1	txt	0.16
5134_1	pdf	3.66

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
LWD - GR MPR	608	2534
LWD - GR MPR APX CLSS	5112	5235
LWD - GR MPR CCN ORD APX	2534	4043





LWD - GR MPR CCN ORD APX CLSS	4043	5112
LWD - GR OTK	5445	5655
LWD - GR OTK CCN ORD	5297	5445
LWD - GR OTK CCN ORD CLSS	5655	5881
LWD - GR OTK CLSS	5235	5295
MREX HDIL GR	5275	5687
MREX HDIL GR	5600	5775
RCI GR	5292	5554
RCI GR	5292	5616
RCI GR	5331	5332
RCI GR	5568	5569
VSP GR	2547	5882
XMAC EI GR	5160	5882

Foringsrør og formasjonsstyrketester

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm3]	Type formasjonstest
CONDUCTOR	36	207.0	42	213.0	0.00	LOT
SURF.COND.	20	599.0	26	605.0	1.57	LOT
INTERM.	13 5/8	2526.0	17	2534.0	1.88	LOT
INTERM.	9 7/8	5209.0	12 1/4	5234.0	2.20	LOT
OPEN HOLE		5295.0	9 7/8	5295.0	0.00	LOT
OPEN HOLE		5881.0	8 1/2	5881.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
213	1.04			DUMMY	
605	1.08			DUMMY	
1402	1.21	80.0		DUMMY	
1980	1.23	31.0		DUMMY	
2534	0.00			DUMMY	
3168	1.37	38.0		DUMMY	
4002	1.37	35.0		DUMMY	
4354	1.37	34.0		DUMMY	
4686	0.00			DUMMY	



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4945	1.37	34.0		DUMMY	
5746	1.86	47.0		DUMMY	
5881	1.86	48.0		DUMMY	
5881	0.00			DUMMY	