Generell informasjon

Brønnbane navn	2/7-31
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Funn	2/7-31
Brønn navn	2/7-31
Seismisk lokalisering	BPN 9102-163 2& SP 982
Utvinningstillatelse	018
Boreoperatør	Phillips Petroleum Company Norway
Boretillatelse	943-L
Boreinnretning	MÆRSK GALLANT
Boredager	148
Borestart	13.01.1999
Boreslutt	09.06.1999
Frigitt dato	09.06.2001
Publiseringsdato	29.05.2002
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	EARLY CRETACEOUS
1. nivå med hydrokarboner, formasjon.	TUXEN FM
2. nivå med hydrokarboner, alder	LATE JURASSIC
2. nivå med hydrokarboner, formasjon	ULA FM
3. nivå med hydrokarboner, alder	EARLY PERMIAN
3. nivå med hydrokarboner, formasjon	ROTLIEGEND GP
Avstand, boredekk - midlere havflate [m]	47.5
Vanndybde ved midlere havflate [m]	72.8
Totalt målt dybde (MD) [m RKB]	4968.2
Totalt vertikalt dybde (TVD) [m RKB]	4965.6
Maks inklinasjon [°]	6.9
Temperatur ved bunn av brønnbanen [°C]	176

Eldste penetrerte alder	EARLY PERMIAN
Eldste penetrerte formasjon	ROTLIEGEND GP
Geodetisk datum	ED50
NS grader	56° 20' 12.4'' N
ØV grader	3° 5' 15.4'' E
NS UTM [m]	6243705.05
ØV UTM [m]	505416.77
UTM sone	31
NPDID for brønnbanen	3573

Brønnhistorie

General

The objectives of drilling the 2/7-31 Ebba Prospect well were to test the hydrocarbon potential of the Permian Rotliegend and Jurassic Lower Ula sandstones in a fault closed structural trap. The prospect was located 10 km west of the Embla field and 1 km west of the Phillips 2/7-19 well, which tested hydrocarbons in the Jurassic Lower Ula Formation. Further, the well should establish proven economic reserves and obtain open hole wire line logs, cores and production tests in both formations.

Operations and results

Well 2/7-31 was spudded with the jack-up rig "Mærsk Galant" on 13 January 1999 and drilling was completed on 5 May 1999 at 4968 m in the Permian Rotliegend Group. It was drilled with spud mud down to 593 m and with oil based Versaport mud from 593 to TD.
Hydrocarbons were encountered first in the Lower Cretaceous Tuxen Formation (Top 4372.1 m), then in the sandstones of the Jurassic Lower Ula (Top 4483.6 m) and Bryne (Top 4634.2 m) Formations, and finally in the sandstone of the Permian Rotliegend Group (Top 4750m). All zones were evaluated either by MWD/LWD log or open and cased hole wire line data. Wire line formation pressure tests were taken throughout the Rotliegend section and oil samples were recovered from two FMT tests at 4793 m and 4812 m. Planned coring of the Jurassic sandstones was cancelled due to operational difficulties in the HPHT environment encountered in this well. Coring in the Rotliegend faced a similar fate but the setting of a liner stabilized the well and one core was taken from the interval 4795.7 - 4798.2 m and three in the interval 4811.3 - 4850.9 m. The well was suspended as an oil discovery.

Testing

A DST was performed over the Ula Sandstone interval 4565.9 - 4623.8 m. The well flowed at an average stabilized rate of 283 Sm3 oil and 120000 Sm3 gas on a 16/64" choke.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
466.00	4968.00

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	15734.0	15741.6	[ft]
2	15785.0	15877.6	[ft]
3	15877.6	15905.6	[ft]
4	15908.0	15915.3	[ft]

Total kjerneprøve lengde [m]	41.3
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder


15734-15791ft


15791-15806ft


15806-15821ft


15821-15836ft


15836-15851ft


15851-15866ft


15866-15880ft


15880-15895ft


15895-15911ft


15911-15915ft

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
14560.0	[m]	DC	PETROS
14920.0	[m]	DC	PETROS
15330.0	[m]	DC	PETROSTA

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST1	0.00	0.00		23.05.1999 - 23:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
121	NORDLAND GP
1541	HORDALAND GP
3000	ROGALAND GP
3000	BALDER FM
3018	SELE FM
3072	LISTA FM
3115	VÅLE FM
3146	SHETLAND GP
3146	EKOFISK FM
3203	TOR FM
3580	HOD FM
4074	BLODØKS FM
4087	HIDRA FM
4204	CROMER KNOLL GP
4204	RØDBY FM
4284	SOLA FM
4372	TUXEN FM
4379	ÅSGARD FM
4437	TYNE GP
4437	MANDAL FM
4439	FARSUND FM
4469	VESTLAND GP
4469	ULA FM
4634	BRYNE FM
4668	ZECHSTEIN GP
4750	ROTLIEGEND GP

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
3573	pdf	0.80

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
3573_2_7_31_COMPLETION_REPORT	.pdf	319.61

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsventil størrelse [mm]
1.0	4623	4565	6.3

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				163

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	282	120360		0.702	426

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBIL HDIP GR	4763	4849
FMT	3157	4198
FMT	4783	4937
HDIL MAC ZDL GR	1943	4230
HDIL XMAC CN GR	4763	4965
HDIL XMAC GR	4763	4849
ISF LSS GR	157	770
MRIL	4774	4854
MWD CDR ADN DIR	4258	4968

SBT	1993	4229
SWC	4778	4954
VSP	152	4846
ZDL CN GR	4763	4967
ZDL CN XMAC GR	4763	4849

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	30	222.5	36	225.0	0.00	LOT
SURF.COND.	20	584.3	26	586.0	0.00	LOT
INTERM.	13 3/8	1946.8	17 1/2	1950.0	1.67	LOT
INTERM.	9 7/8	4253.8	12 1/4	4255.0	1.95	LOT
LINER	7 3/4	4968.0	8 1/2	4968.0	2.15	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
134	1.03	12.0		BENTONITE	
227	1.26	15.0		BENTONITE	
253	1.14	6.0		BENTONITE	
584	1.13	8.0		BENTONITE	
649	1.43	29.0		VERSAPORT	
1006	1.43	23.0		VERSAPORT	
1574	1.43	21.0		VERSAPORT	
1798	1.56	25.0		VERSAPORT	
1947	1.67	22.0		VERSAPORT	
1951	1.56	24.0		VERSAPORT	
2052	1.67	24.0		VERSAPORT	
2350	1.67	25.0		VERSAPORT	
2934	1.70	24.0		VERSAPORT	
3186	1.67	20.0		VERSAPORT	
3207	1.67	22.0		VERSAPORT	
3537	1.67	22.0		VERSAPORT	
3827	1.67	24.0		VERSAPORT	
3895	1.67	25.0		VERSAPORT	
3900	1.67	25.0		VERSAPORT	

3995	2.16	90.0		VERSAPORT	
4020	2.16	91.0		VERSAPORT	
4045	1.67	28.0		VERSAPORT	
4165	1.71	29.0		VERSAPORT	
4167	2.12	46.0		VERSAPORT	
4225	1.80	34.0		VERSAPORT	
4233	1.80	38.0		VERSAPORT	
4243	1.82	32.0		VERSAPORT	
4245	1.80	33.0		VERSAPORT	
4251	1.80	27.0		VERSAPORT	
4259	1.80	32.0		VERSAPORT	
4369	2.16	82.0		VERSAPORT	
4372	2.00	38.0		VERSAPORT	
4382	2.12	46.0		VERSAPORT	
4407	2.12	42.0		VERSAPORT	
4449	2.12	44.0		VERSAPORT	
4477	2.12	43.0		VERSAPORT	
4510	2.12	47.0		VERSAPORT	
4539	2.14	45.0		VERSAPORT	
4542	2.16	49.0		VERSAPORT	
4546	2.16	49.0		VERSAPORT	
4599	2.16	48.0		VERSAPORT	
4671	2.16	50.0		VERSAPORT	
4686	2.16	49.0		VERSAPORT	
4705	2.06	49.0		VERSAPORT	
4722	2.14	51.0		VERSAPORT	
4755	2.16	50.0		VERSAPORT	
4756	2.16	52.0		VERSAPORT	
4759	2.16	57.0		VERSAPORT	
4764	2.16	51.0		VERSAPORT	
4775	2.06	43.0		VERSAPORT	
4781	2.06	42.0		VERSAPORT	
4795	2.10	47.0		VERSAPORT	
4798	2.06	41.0		VERSAPORT	
4811	2.06	45.0		VERSAPORT	
4839	2.06	48.0		VERSAPORT	
4848	2.06	48.0		VERSAPORT	
4851	2.06	49.0		VERSAPORT	
4925	2.06	52.0		VERSAPORT	
4968	1.70			BRINE	

4968	2.16	81.0		VERSAPORT	