



Generell informasjon

Brønnbane navn	9/2-4 S
Type	EXPLORATION
Formål	APPRAISAL
Status	RE-CLASS TO DEV
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	YME
Funn	9/2-1 Yme
Brønn navn	9/2-4
Seismisk lokalisering	ST 9002-INLINE 178 & CROSSLINE 998
Utvinningstillatelse	114
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	775-L
Boreinnretning	DEEPSEA BERGEN
Boredager	108
Borestart	25.12.1993
Boreslutt	11.04.1994
Frigitt dato	11.04.1996
Publiseringsdato	24.09.2002
Opprinnelig formål	APPRAISAL
Reklassifisert til brønnbane	9/2-A-1
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	SANDNES FM
Avstand, boredekk - midlere havflate [m]	23.0
Vanndybde ved midlere havflate [m]	91.5
Totalt målt dybde (MD) [m RKB]	4417.0
Totalt vertikalt dybde (TVD) [m RKB]	3313.0
Maks inklinasjon [°]	62.5
Temperatur ved bunn av brønnbanen [°C]	110
Eldste penetrerte alder	MIDDLE JURASSIC
Eldste penetrerte formasjon	BRYNE FM
Geodetisk datum	ED50



NS grader	57° 49' 7.48" N
ØV grader	4° 31' 10.74" E
NS UTM [m]	6409689.37
ØV UTM [m]	590278.65
UTM sone	31
NPDID for brønnbanen	2258

Brønnhistorie

General

The main objective for the deviated well 9/2-4 S was to appraise commercial hydrocarbon reserves in the southern part of the Upper Jurassic Gamma structure on the Yme field. Further to prove continuation of the equivalent shallow marine sandstone seen in well 9/2-1, with similar reservoir properties, and finally, to gather data for improved seismic velocity analysis on the southern part of the Gamma structure.

Operations and results

Appraisal well 9/2-4 S was spudded with the semi-submersible installation "DeepSea Bergen" on 25 December 1993 and drilled to a total depth of 4417 m (3313 m TVD) in the Middle Jurassic Bryne Formation. No shallow gas was encountered in the top-hole section. The well was drilled to 4090m MD using water based mud with bentonite and bentonite/CMC EHV down to 647 m. The 17 1/2" section (647 m to 2215 m) was drilled from the top to Early Cretaceous (Top Early Cretaceous at 1590 m) with KCl polymer mud, then converted to Anco 2000 mud by adding 3% glycol. Due to hole stability problems, the well was plugged back to 3755 m and a sidetrack was performed to TD at 4417m using ester based mud. The top Sandnes Formation was penetrated 13.5 m higher than prognosed, and top reservoir sand 17.5 m higher than prognosed. The oil/water contact was not evident in this well. However, the results from the MWD/LWD gave no indication of a different OWC than anticipated in the well 9/2-1 (3210 m TVD MSL). The estimated Net/Gross for the reservoir section is 0.67, which is slightly less than for the 9/2 - 1 well. This is compensated by an increased thickness of high reservoir quality. One core was cut in the interval 4150m - 4168.5 m in the Sandnes Formation. A segregated FMT fluid sample from 4132.6 m gave an oil with density of 0.83 g/cc (at surface condition) and the four pressure measurements from the FMT-log gave an oil gradient of 0.70 g/cc. The well was tied back with 9 5/8" casing and suspended 11 April 1994 as an oil appraisal. The well was then re-classified to development well.

Testing

No drill stem test was performed

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
650.00	4090.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	4150.0	4166.9	[m]

Total kjerneprøve lengde [m]	16.9
Kjerner tilgjengelig for prøvetaking?	YES

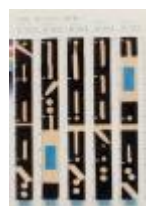
Kjernebilder



4150-4155m



4155-4160m



4160-4165m



4165-4167m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
650.0	[m]	DC	GEOST
660.0	[m]	DC	GEOST
670.0	[m]	DC	GEOST
680.0	[m]	DC	GEOST
690.0	[m]	DC	GEOST
700.0	[m]	DC	GEOST
710.0	[m]	DC	GEOST
720.0	[m]	DC	GEOST
730.0	[m]	DC	GEOST
740.0	[m]	DC	GEOST
750.0	[m]	DC	GEOST
760.0	[m]	DC	GEOST
770.0	[m]	DC	GEOST
780.0	[m]	DC	GEOST
1590.0	[m]	DC	GEOST
1610.0	[m]	DC	GEOST
1620.0	[m]	DC	GEOST
1640.0	[m]	DC	GEOST



1650.0 [m]	DC	GEOST
1670.0 [m]	DC	GEOST
1680.0 [m]	DC	GEOST
1700.0 [m]	DC	GEOST
1710.0 [m]	DC	GEOST
1730.0 [m]	DC	GEOST
1740.0 [m]	DC	GEOST
1760.0 [m]	DC	GEOST
1770.0 [m]	DC	GEOST
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3290.0	[m]	DC	GEOST
3310.0	[m]	DC	GEOST



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3410.0	[m]	DC	GEOST
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3440.0	[m]	DC	GEOST
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3460.0	[m]	DC	GEOST
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3490.0	[m]	DC	GEOST
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3510.0	[m]	DC	GEOST
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3770.0	[m]	DC	GEOST
3790.0	[m]	DC	GEOST



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3890.0	[m]	DC	GEOST
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3980.0	[m]	DC	GEOST
3990.0	[m]	DC	GEOST
4000.0	[m]	DC	GEOST
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4090.0	[m]	DC	GEOST
4099.0	[m]	DC	GEOST
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4192.0	[m]	DC	GEOST



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4414.0 [m]	DC	GEOST

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
115	NORDLAND GP
521	HORDALAND GP
724	ROGALAND GP
724	BALDER FM
741	SELE FM
753	LISTA FM
774	VÅLE FM
784	SHETLAND GP
784	EKOFISK FM
855	TOR FM



1168	HOD FM
1545	BLODØKS FM
1581	CROMER KNOLL GP
1581	SOLA FM
1723	ÅSGARD FM
2730	BOKNFJORD GP
2730	FLEKKEFJORD FM
3075	SAUDA FM
3875	TAU FM
3993	EGERSUND FM
4094	VESTLAND GP
4094	SANDNES FM
4295	BRYNE FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
2258	pdf	0.44

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
2258_9_2_4_S_COMPLETION_REPORT_AND_LOG	pdf	9.70

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL GR	1460	4376
CIM DIR	91	2215
DIFL ACL CHT GR	2197	2628
DIFL ACL GR	633	2208
DIR	2200	3925
FMT GR	4128	4163
MWD RLL	2215	4150
RLL DIR	182	645





SFD RLL	4310	4417
SLD RLL	4150	4300

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	174.0	36	175.0	0.00	LOT
CONDUCTOR	20	635.0	26	637.0	1.74	LOT
INTERM.	13 3/8	2200.0	17 1/2	2202.0	1.85	LOT
INTERM.	9 5/8	3752.0	12 1/4	3755.0	0.00	LOT
LINER	7	4417.0	8 1/2	4417.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
645	1.03			WATER BASED	
647	1.30	27.0		WATER BASED	
650	1.10	18.0		WATER BASED	
1335	1.39	30.0		WATER BASED	
1574	1.39	30.0		DUMMY	
2215	1.39	29.0		WATER BASED	
2427	1.39	27.0		WATER BASED	
2836	1.39	26.0		WATER BASED	
2864	1.39	26.0		WATER BASED	
2930	1.39	26.0		WATER BASED	
3016	1.45	31.0		WATER BASED	
3080	1.45	33.0		WATER BASED	
3086	1.50	32.0		WATER BASED	
3106	1.50	33.0		WATER BASED	
3260	1.50	28.0		WATER BASED	
3275	1.50	25.0		WATER BASED	
3298	1.50	25.0		WATER BASED	
3343	1.50	29.0		WATER BASED	
3394	1.50	34.0		WATER BASED	
3409	1.50	41.0		WATER BASED	
3537	1.50	41.0		WATER BASED	
3666	1.50	40.0		WATER BASED	



3765	1.70	63.0		OIL BASED	
3774	1.70	39.0		WATER BASED	
3788	1.70	37.0		WATER BASED	
3811	1.70	63.0		OIL BASED	
3915	1.77	50.0		WATER BASED	
3930	1.70	59.0		OIL BASED	
3959	1.50	45.0		WATER BASED	
3997	1.70	58.0		OIL BASED	
4090	1.77	49.0		WATER BASED	
4123	1.70	58.0		OIL BASED	
4150	1.70	59.0		OIL BASED	
4169	1.70	57.0		OIL BASED	
4249	1.70	57.0		OIL BASED	
4264	1.70	58.0		OIL BASED	
4309	1.70	58.0		OIL BASED	
4310	1.70	58.0		OIL BASED	
4313	1.70	59.0		OIL BASED	
4336	1.70	58.0		OIL BASED	
4417	1.70	59.0		OIL BASED	

Trykkplott

Porertrykksdataene kommer fra logging i brønnen hvis ingen annen kilde er oppgitt. I noen brønner der trykk ikke er logget, er det brukt informasjon fra formasjonstester eller brønnspark. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
2258 Formation pressure (Formasjonstrykk)	pdf	0.21

