



Generell informasjon

Brønnbane navn	25/2-4
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	LILLE-FRIGG
Funn	25/2-4 Lille-Frigg
Brønn navn	25/2-4
Seismisk lokalisering	LINE 059588 SP.2858
Utvinningstillatelse	026
Boreoperatør	Elf Petroleum Norge AS
Boretillatelse	129-L
Boreinnretning	NEPTUNE 7
Boredager	160
Borestart	14.05.1975
Boreslutt	20.10.1975
Frigitt dato	20.10.1977
Publiseringsdato	29.06.2004
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	GAS/CONDENSATE
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	HUGIN FM
Avstand, boredekk - midlere havflate [m]	24.0
Vanndybde ved midlere havflate [m]	113.0
Totalt målt dybde (MD) [m RKB]	4360.0
Temperatur ved bunn av brønnbanen [°C]	144
Eldste penetrerte alder	LATE TRIASSIC
Eldste penetrerte formasjon	SMITH BANK FM
Geodetisk datum	ED50
NS grader	59° 58' 44.09" N
ØV grader	2° 22' 58.88" E
NS UTM [m]	6649378.84
ØV UTM [m]	465563.12



UTM sone	31
NPDID for brønnbanen	356

Brønnhistorie

**General**

Well 25/2-4 was drilled in the north west corner of block 25/2. It lies on the eastern flank of the Viking basin in the Viking Graben and to the east of the Frigg Field and Frigg Kitchen. The main targets was the Jurassic with a mapped seismic structure of 30 ms vertical closure and 30 square km acreage spreading on the Shell block 30/11. Well 25/2-4 was located on the west flank near the top of the structure. Agreement with Shell management was signed for a bottom hole contribution with obligation for the operator to reach the Triassic red shales or to set TD at 3360 m.

The well is Reference Well for the Drake Formation.

Operations and results

Exploration well 25/2-4 was spudded with the semi-submersible installation Neptune 7 on 14 May 1975 and drilled to TD at 4384 m in the Triassic Smith Bank Formation. The well was drilled water based with salt/gel/Flosal/seawater down to 733 m and with FCL/LC mud from 733 m to TD. At 3375 m the well kicked due to an under balanced hydrostatic mud pressure.

The well penetrated Danian, Paleocene and Eocene sandstone sequences (Frigg Formation, Intra Balder Formation Sandstones, Hermod and Ty formations). All these sands were water wet without shows. In the Late Cretaceous limestones were found fairly well developed overlying a thick shaly and marly sequence with some more limestone levels, particularly in the Campanian and Turonian. The latter limestones contained significant shows, but a production test proved tight formation. The Kimmerian unconformity was penetrated at 3632 m with 8 m Draupne shale. In the Jurassic two reservoir sandstone sequences were encountered: the Vestland Group and the Statfjord Formation. The Vestland sequence was first interpreted as oil and gas bearing from 3640 m to 3708 m (Hugin Formation) with a probable gas/oil contact 3660 m and an oil/water contact between 3704 m to 3708 m. Net pay in the 25/2-4 Hugin reservoir was estimated around 40 m with porosity from logs averaging 25% and water saturation lower than 25%. The Statfjord sandstones had similar reservoir properties, but were water wet. Due to high pressure the hydrocarbon zone in Hugin Formation was not production tested, in stead fifteen FIT samples were taken, of which five were taken in the "gas zone" and 11 in the "oil zone". Four of the tests were unsuccessful, the remaining samples recovered oil and gas but PVT analyses indicated that the fluids were not fully representative of the formation fluid. After a well test in a later well, 25/2-12 A, it became clear that the reservoir fluid was actually gas with high condensate content. Logs in 25/2-12 confirmed the hydrocarbon/water contact found in 25/2-4 (3678m MSL).

Shows were recorded as follows: At 2750 m gas index and formation pressure increased significantly and remained high down to 3710 m. Peaks of gas were recorded when entering limestone stringers throughout the Late Cretaceous and at the top of the Jurassic sandstones. Direct fluorescence and cuts were observed over the interval 2900 m to 3877 m on limestones and sandstones.

Three cores were cut in the Hugin Formation and three in the Sleipner Formation, 81.75 m in total. In addition to the FIT samples in the Hugin Formation one FIT was taken in the Tryggvason Formation (3374 m: mud filtrate and trace gas) and one in the Statfjord Formation (4116 m: mud filtrate only).

Testing

Campanian limestones were tested over the interval 2902m to 2913 m. No significant flow was recorded even after acid treatment. Only 3.2 m of mud mixed with water and gas were recovered by reverse circulation. No production test was conducted on the Jurassic oil column because rig equipment was inadequate for the reservoir pressures encountered.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
210.00	4360.00

Borekaks tilgjengelig for prøvetaking?	NO
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3650.0	3659.0	[m]
2	3659.0	3676.0	[m]
3	3677.0	3695.0	[m]
4	3817.0	3833.8	[m]
5	3835.0	3845.0	[m]
6	3852.0	3863.0	[m]

Total kjerneprøve lengde [m]	81.8
Kjerner tilgjengelig for prøvetaking?	YES

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
2580.0	[m]	DC	OD
2600.0	[m]	DC	OD
2620.0	[m]	DC	OD
2640.0	[m]	DC	OD
2660.0	[m]	DC	OD
2680.0	[m]	DC	OD
2700.0	[m]	DC	OD
2720.0	[m]	DC	OD
2740.0	[m]	DC	OD
2760.0	[m]	DC	OD
2780.0	[m]	DC	OD
2800.0	[m]	DC	OD
2820.0	[m]	DC	OD
2840.0	[m]	DC	OD



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 9.5.2024 - 07:29

2860.0	[m]	DC	OD
2880.0	[m]	DC	OD
2900.0	[m]	DC	OD
2920.0	[m]	DC	OD
2940.0	[m]	DC	OD
2960.0	[m]	DC	OD
2980.0	[m]	DC	OD
3020.0	[m]	DC	OD
3040.0	[m]	DC	OD
3060.0	[m]	DC	OD
3080.0	[m]	DC	OD
3100.0	[m]	DC	OD
3120.0	[m]	DC	OD
3140.0	[m]	DC	OD
3160.0	[m]	DC	OD
3180.0	[m]	DC	OD
3200.0	[m]	DC	OD
3220.0	[m]	DC	OD
3235.0	[m]	DC	OD
3255.0	[m]	DC	OD
3275.0	[m]	DC	OD
3295.0	[m]	DC	OD
3315.0	[m]	DC	OD
3335.0	[m]	DC	OD
3355.0	[m]	DC	OD
3380.0	[m]	DC	OD
3400.0	[m]	DC	OD
3420.0	[m]	DC	OD
3440.0	[m]	DC	OD
3460.0	[m]	DC	OD
3485.0	[m]	DC	OD
3500.0	[m]	DC	OD
3520.0	[m]	DC	OD
3540.0	[m]	DC	OD
3560.0	[m]	DC	OD
3585.0	[m]	DC	OD
3600.0	[m]	DC	OD
3620.0	[m]	DC	OD



Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
137	NORDLAND GP
427	UTSIRA FM
1025	HORDALAND GP
1077	SKADE FM
1111	NO FORMAL NAME
1213	GRID FM
1250	NO FORMAL NAME
2012	FRIGG FM
2061	NO FORMAL NAME
2098	ROGALAND GP
2098	INTRA BALDER FM SS
2177	BALDER FM
2208	INTRA BALDER FM SS
2223	SELE FM
2250	HERMOD FM
2325	LISTA FM
2400	VÅLE FM
2590	TY FM
2606	VÅLE FM
2617	SHETLAND GP
2617	HARDRÅDE FM
2925	KYRRE FM
3370	TRYGGVASON FM
3632	VIKING GP
3632	DRAUPNE FM
3640	VESTLAND GP
3640	HUGIN FM
3752	SLEIPNER FM
3876	DUNLIN GP
3876	DRAKE FM
3927	COOK FM
3965	AMUNDSEN FM
4084	STATFJORD GP
4261	NO GROUP DEFINED
4261	SMITH BANK FM



Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
356	pdf	0.39

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
356 1	pdf	3.27

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
356 01 WDSS General Information	pdf	2.83

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
356 2 Sedimentogenese du jurassic de la zone centrale	pdf	7.82
356 3 Core measurements porosity vs permeability	pdf	0.17
356 4 Computer processed interpretation	pdf	15.24
356 5 Computer processed interpretation	pdf	2.45
356 6 Completion Report	pdf	2.86

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsventil størrelse [mm]
1.0	2902	2911	0.0





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

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

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
BHC	724	3351
BHC-C	3351	4358
CBL	2800	4253
CBL	2825	3350
CBL	3020	3350
CBL	3250	3725
CBL	4050	4138
CDM	1950	4259
CDM AP	1950	4259
CDM FP	1951	4258
CDM SP	1950	4259
DLL	3550	3903
FDC	2000	2100
FDC	2550	2867
FDC CNL	3351	3909
GR	137	724
IES	724	4361
ML MLL	2859	2949
MLL ML	3351	3913
TEMP	127	724
TEMP	1580	2004
TEMP	3150	3500

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	195.0	36	200.0	0.00	LOT
INTERM.	20	723.0	26	733.0	0.00	LOT
INTERM.	13 3/8	2860.0	17 1/2	2870.0	0.00	LOT
INTERM.	9 5/8	3353.0	12 1/4	3374.0	0.00	LOT
OPEN HOLE		4360.0	8 1/2	4360.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
136	1.06	100.0		water based	
700	1.05	100.0		water based	
1437	1.18	60.0	12.0	water based	
2147	1.25	55.0	11.0	water based	
3380	1.91	53.0	18.0	water based	
3640	1.92	60.0		water based	
3915	1.93	54.0	22.0	water based	
4260	1.94	56.0	22.0	water based	
4360	1.77	66.0		water 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]
356 Formation pressure (Formasjonstrykk)	pdf	0.22

