



Generell informasjon

Brønnbane navn	6407/1-3
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORWEGIAN SEA
Felt	TYRIHANS
Funn	6407/1-3 Tyrihans Nord
Brønn navn	6407/1-3
Seismisk lokalisering	ST 8110 - 435 SP 140
Utvinningstillatelse	073
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	388-L
Boreinnretning	DYVI DELTA
Boredager	122
Borestart	17.09.1983
Boreslutt	16.01.1984
Frigitt dato	16.01.1986
Publiseringsdato	13.12.2005
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL/GAS
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	FANGST GP
Avstand, boredekk - midlere havflate [m]	29.0
Vanndybde ved midlere havflate [m]	286.0
Totalt målt dybde (MD) [m RKB]	4469.0
Totalt vertikalt dybde (TVD) [m RKB]	4467.0
Maks inklinasjon [°]	4.2
Temperatur ved bunn av brønnbanen [°C]	153
Eldste penetrerte alder	LATE TRIASSIC
Eldste penetrerte formasjon	GREY BEDS (INFORMAL)
Geodetisk datum	ED50
NS grader	64° 52' 25.48" N



ØV grader	7° 2' 53.47" E
NS UTM [m]	7195989.53
ØV UTM [m]	407531.49
UTM sone	32
NPDID for brønnbanen	29

Brønnhistorie

**General**

Wildcat well 6407/1-3 was drilled in the Haltenbanken area off shore Mid Norway. It is situated on a separate but related structure to 6407/1-2, which found gas-condensate in the Middle Jurassic Garn Formation. The primary target of well 6407/1-3 was Middle Jurassic sandstones. Secondary target was Early Jurassic sandstones. Other zones of interest were the Late and Early Cretaceous and the coal unit in the Early Jurassic.

The well is Type Well for the Brygge Formation and Reference Well for the Hordaland Group, it is Type Well for the Garn Formation, and it is Reference Well for the Ile and Not Formations.

Operations and results

Wildcat well 6407/1-3 was spudded with the semi-submersible installation Dyvi Delta on 17 September 1983 and drilled to TD at 4469 m in Late Triassic sediments of the Åre Formation. Hole problems occurred when running back in the hole after a period of bad weather. The hole had collapsed and had to be reamed back to bottom at 3136 M. A drilling break occurred at 3746 to 3748 m. All in all, there was a total of 16 days downtime caused by bad weather. Still, the well was drilled 22 days faster than prognosed. This was mainly due to fast penetration in the 17 1/2" and 6" hole, an efficient coring operation and favourable weather conditions compared to well 6407/1-2. The well was drilled with seawater/gel down to 948 m, with lignosulphonate/gypsum from 948 m to 3608 m, and with bentonite gel from 3608 m to TD.

Hydrocarbon bearing Middle Jurassic sandstones (Garn Formation) were encountered at 3600 m. A gas cap extended to 3687.5 m followed by an oil zone down to 3709 m. At this point the sand grades rapidly into the underlying silt and clay of the Not Formation at 3709.5 m. This makes it difficult to conclude on an OWC for the discovery. The Nise Formation from 2448 m to 2601 m had good gas shows whilst drilling and oil contamination of drilling mud. Mud log data suggested a possible light oil accumulation with associated gas and an oil water contact at approximately 2560 m. Reservoir properties were however poor with a lithology consisting of siltstone grading to very fine sandstone interbedded with claystone. Hydrocarbon shows were also recorded in zones in the Early Cretaceous and in the lower parts of the "Coal Unit". None of these zones were of good reservoir quality. The Early Jurassic sandstones showed only traces of hydrocarbons. No good source rocks were found above base Cretaceous. Late Jurassic shales from 3521 m to 3545 m had excellent source potential with type II/III kerogen and TOC in the range 3 -7%. Hydrogen Index was typically 400 - 500 mg HC/g TOC and the shales had reached early oil window maturity. Also Early Jurassic shales and coals has potential for light oils and gas.

Seven cores were cut in the Middle Jurassic sandstones from 3619 m to 3717 m and from 3748 m to 3758 m. RFT pressure points were sampled over the Middle to Early Jurassic sandstone sequences. Three RFT fluid samples were taken at 3695 m, 3692 m, and at 3676.2 m.

The well was permanently abandoned on 16 January 1984 as an oil and gas discovery.

Testing

Two drill stem tests were performed in the Middle Jurassic sandstone in the oil zone from 3697.5 - 3702.5 m and in the gas zone from 3665 - 3670 m. DST1 produced 396.1 Sm³ oil and 58430 Sm³ gas per day, with a gas/oil ratio of 148 Sm³/Sm³. DST2 produced 191.8 Sm³ oil and 725400 gas per day, with a gas/oil ratio of 3782 Sm³/Sm³.



Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
420.00	4467.50

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3619.0	3619.7	[m]
2	3621.0	3639.0	[m]
3	3639.0	3657.7	[m]
4	3657.0	3684.0	[m]
5	3684.0	3710.4	[m]
6	3711.0	3716.2	[m]
7	3748.0	3758.0	[m]

Total kjerneprøve lengde [m]	106.0
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



3619-3624m



3624-3628m



3628-3632m



3632-3636m



3636-3640m



3640-3644m



3644-3648m



3648-3652m



3652-3656m



3656-3658m





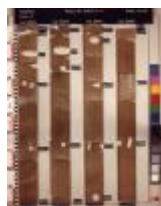
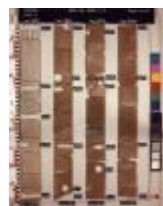
3659-3663m

3663-3667m

3667-3671m

3671-3675m

3675-3679m



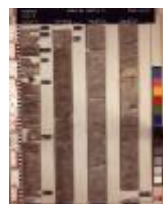
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3683-3687m

3687-3691m

3691-3695m

3695-3699m



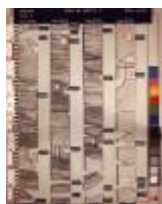
3699-3703m

3703-3707m

3707-3711m

3711-3715m

3715-3750m



3750-3754m

3754-3758m

Palynologiske preparater i Sjøkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
2110.0	[m]	DC	LAP
2190.0	[m]	DC	LAP
2215.0	[m]	DC	LAP
2230.0	[m]	DC	LAP
2245.0	[m]	DC	LAP
2260.0	[m]	DC	LAP
2275.0	[m]	DC	LAP
2290.0	[m]	DC	LAP
2305.0	[m]	DC	LAP
2333.0	[m]	SWC	LAP
2335.0	[m]	DC	LAP
2339.9	[m]	SWC	LAP
2365.0	[m]	DC	LAP
2367.0	[m]	SWC	LAP



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 11.5.2024 - 20:56

2380.0	[m]	DC	LAP
2440.0	[m]	DC	LAP
2455.0	[m]	SWC	LAP
2470.0	[m]	DC	LAP
2476.0	[m]	SWC	LAP
2507.0	[m]	SWC	LAP
2515.0	[m]	DC	LAP
2521.9	[m]	SWC	LAP
2526.0	[m]	SWC	LAP
2537.0	[m]	SWC	LAP
2546.0	[m]	SWC	LAP
2555.0	[m]	SWC	LAP
2565.0	[m]	SWC	LAP
2570.0	[m]	DC	LAP
2579.9	[m]	SWC	LAP
2585.0	[m]	DC	LAP
2585.0	[m]	SWC	LAP
2600.0	[m]	DC	LAP
2615.0	[m]	DC	LAP
2630.0	[m]	DC	LAP
2645.0	[m]	DC	LAP
2660.0	[m]	DC	LAP
2675.0	[m]	DC	LAP
2690.0	[m]	DC	LAP
2695.0	[m]	SWC	LAP
2705.0	[m]	DC	LAP
2720.0	[m]	DC	LAP
2735.0	[m]	DC	LAP
2750.0	[m]	DC	LAP
2765.0	[m]	DC	LAP
2780.0	[m]	DC	LAP
2795.0	[m]	DC	LAP
2810.0	[m]	DC	LAP
2825.0	[m]	DC	LAP
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2855.0	[m]	DC	LAP
2870.0	[m]	SWC	LAP
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2900.0	[m]	DC	LAP
2915.0	[m]	DC	LAP



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 11.5.2024 - 20:56

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2975.0	[m]	DC	LAP
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3005.0	[m]	DC	LAP
3020.0	[m]	DC	LAP
3035.0	[m]	DC	LAP
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3080.0	[m]	DC	LAP
3090.0	[m]	SWC	LAP
3095.0	[m]	DC	LAP
3110.0	[m]	DC	LAP
3125.0	[m]	DC	LAP
3155.0	[m]	DC	LAP
3160.0	[m]	SWC	LAP
3170.0	[m]	DC	LAP
3185.0	[m]	DC	LAP
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3215.0	[m]	DC	LAP
3230.0	[m]	DC	LAP
3230.0	[m]	SWC	LAP
3245.0	[m]	DC	LAP
3260.0	[m]	DC	LAP
3275.0	[m]	DC	LAP
3280.0	[m]	SWC	LAP
3290.0	[m]	DC	LAP
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3350.0	[m]	DC	LAP
3365.0	[m]	DC	LAP
3380.0	[m]	DC	LAP
3395.0	[m]	DC	LAP
3410.0	[m]	DC	LAP
3424.0	[m]	SWC	LAP
3425.0	[m]	DC	LAP



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 11.5.2024 - 20:56

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3484.0	[m]	SWC	LAP
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3530.0	[m]	DC	LAP
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3590.0	[m]	DC	LAP
3598.0	[m]	SWC	LAP
3599.0	[m]	SWC	LAP
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3630.9	[m]	C	LAP
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3645.0	[m]	C	LAP
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3666.1	[m]	C	LAP
3667.2	[m]	C	LAP
3689.3	[m]	DC	LAP
3689.6	[m]	DC	LAP
3693.4	[m]	C	LAP
3693.5	[m]	C	RRI
3698.3	[m]	DC	LAP
3704.5	[m]	C	LAP
3704.6	[m]	C	LAP
3704.7	[m]	C	LAP
3705.5	[m]	C	LAP
3709.4	[m]	C	LAP
3709.7	[m]	C	LAP
3709.7	[m]	C	RRI



3710.1	[m]	C	LAP
3711.2	[m]	C	LAP
3713.8	[m]	C	RRI
3715.1	[m]	C	LAP
3715.6	[m]	C	LAP
3716.1	[m]	C	LAP
3716.2	[m]	C	RRI
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Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 11.5.2024 - 20:56

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4045.0	[m]	C	LAP
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4405.0	[m]	C	LAP
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4435.0	[m]	DC	LAP



4450.0	[m]	DC	LAP
4460.0	[m]	DC	LAP
4465.0	[m]	DC	LAP
4467.5	[m]	DC	LAP

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	TEST1	3697.50	3702.50		22.12.1983 - 00:00	YES
DST	TEST2	3665.00	3670.00		04.01.1984 - 00:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
315	NORDLAND GP
315	NAUST FM
1449	KAI FM
1763	HORDALAND GP
1763	BRYGGE FM
2213	ROGALAND GP
2213	TARE FM
2300	TANG FM
2346	SHETLAND GP
2346	SPRINGAR FM
2448	NISE FM
2601	CROMER KNOLL GP
2601	LANGE FM
3466	NO FORMAL NAME
3470	LANGE FM
3500	LYR FM
3521	VIKING GP
3521	SPEKK FM
3545	MELKE FM
3600	FANGST GP
3600	GARN FM
3704	NOT FM



3741	ILE FM
3813	BÅT GP
3813	ROR FM
3950	TILJE FM
4150	ÅRE FM
4455	GREY BEDS (INFORMAL)

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
29	pdf	0.81

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
29_1	pdf	1.03
29_2	pdf	1.20
29_3	pdf	0.25
29_4	pdf	5.46
29_5	pdf	0.65
29_6	pdf	1.06

Dokumenter - eldre Søkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
29_01 WDSS General Information	pdf	0.22
29_02 WDSS completion log	pdf	0.36

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
29_01 CompletionReport & Completionlog	pdf	38.11
29_02 Biostratigraphy Kerogen Analysis	pdf	4.48
29_03 Core Analyses Report	pdf	4.26
29_04 Core Photos Sedimentary Features	pdf	87.24





29 05 Discovery Evaluation Report	pdf	18.62
29 06 DST1 and DST2	pdf	22.11
29 07 Final DLWD	pdf	5.62
29 08 Oil Correlation	pdf	2.26
29 09 Partial Fluid Study	pdf	1.23
29 10 Petrophysical Evaluation	pdf	2.16
29 11 Pressure Survey Test1 Run1	pdf	7.20
29 12 Pressure Survey Test2 Run2	pdf	3.08
29 13 Pressure Temperature DST1 Gauge3 719m	pdf	6.79
29 14 Pressure Temperature DST1 Gauge3 722m	pdf	5.95
29 15 Pressure Temperature DST2 3649,47 m	pdf	4.73
29 16 Pressure Temperature DST2 3658,88 m	pdf	8.94
29 17 PVT Analysis DST1	pdf	1.12
29 18 Report Mud and Reservoired Gas Stable Isotopes	pdf	1.24
29 19 Reservoir Fluid Analysis DST2	pdf	2.34
29 30 RFT report	pdf	1.52
29 31 RFT chamber Sample Evaluation	pdf	1.23
29 32 RFT chamber Sample Transfer	pdf	1.47
29 33 Source Rock Evaluation	pdf	10.02
29 34 Supplement Oil Oil Correlation	pdf	1.20
29 35 TBP Distillation Condensate DST2	pdf	1.28
29 36 TBP distillation Oil DST1	pdf	1.27
29 37 Wax Analysis	pdf	1.16

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsventil størrelse [mm]
1.0	3698	3703	19.1
2.0	3665	3670	25.4

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0				





Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	137	867000	0.872	0.665	158
2.0	253	875000	0.776	0.655	3458

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL GR	1980	2280
CBL VDL GR	3082	3595
CBL VDL GR	3385	4469
CST	2333	3598
CST	3597	3963
CST	3982	4469
DLL MSFL SP GR	3595	3976
ISF BHC MSFL SP GR	3964	4469
ISF BHC SP GR	3595	3976
ISF LSS MSFL SP GR	315	3606
LDL CNL GR	3596	3975
LDL CNL NGL	2288	3601
LDL GR	947	2297
MWD - GR RES DIR	2280	3970
NGT	3300	3600
NGT	3595	3976
RFT GR	2288	3467
RFT GR	3393	4024
RFT GR	3595	3950
SHDT GR	2288	3608
SHDT GR	3595	3976
SHDT GR	3964	4469
TEMP	795	4469
VSP	595	4469

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	415.0	36	415.0	0.00	LOT
SURF.COND.	20	948.0	26	965.0	1.70	LOT
INTERM.	13 3/8	2286.0	17 1/2	2300.0	1.87	LOT
INTERM.	9 5/8	3595.0	12 1/4	3608.0	1.82	LOT
LINER	7	3969.0	8 1/2	3976.0	0.00	LOT
OPEN HOLE		4469.0	6	4469.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
450	1.08	66.0		WATER BASED	
575	1.09	50.0		WATER BASED	
670	1.10	60.0		WATER BASED	
920	1.11	47.0		WATER BASED	
1040	1.08	44.0		WATER BASED	
1210	1.12	45.0		WATER BASED	
1380	1.15	47.0		WATER BASED	
1480	1.16	47.0		WATER BASED	
1610	1.15	44.0		WATER BASED	
1800	1.27	44.0		WATER BASED	
1890	1.40	55.0		WATER BASED	
2205	1.55	58.0		WATER BASED	
2310	1.66			WATER BASED	
2525	1.66	51.0		WATER BASED	
2600	1.70	48.0		WATER BASED	
3720	1.20	55.0		WATER BASED	
4320	1.30	73.0		WATER BASED	
4450	1.29	77.0		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]
29 Formation pressure (Formasjonstrykk)	pdf	0.28

