Generell informasjon

Brønnbane navn	6406/3-5
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORWEGIAN SEA
Brønn navn	6406/3-5
Seismisk lokalisering	LINJE 911 - 444 & SP 982
Utvinningstillatelse	091
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	576-L
Boreinnretning	WEST DELTA
Boredager	60
Borestart	03.04.1988
Boreslutt	01.06.1988
Frigitt dato	01.06.1990
Publiseringsdato	18.05.2004
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	SHOWS
Funnbrønnbane	NO
Avstand, boredekk - midlere havflate [m]	29.0
Vanndybde ved midlere havflate [m]	302.0
Totalt målt dybde (MD) [m RKB]	4283.0
Totalt vertikalt dybde (TVD) [m RKB]	4281.0
Maks inklinasjon [°]	4.5
Temperatur ved bunn av brønnbanen [°C]	92
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	TILJE FM
Geodetisk datum	ED50
NS grader	64° 58' 20.07'' N
ØV grader	6° 58' 33.65'' E
NS UTM [m]	7207070.27
ØV UTM [m]	404464.42
UTM sone	32
NPDID for brønnbanen	1227

Brønnhistorie

General

Well 6406/3-5 was designed to explore the Lambda structure and was the first well on the structure. The Lambda structure is a flat-lying horst situated in the NE corner of the block.

The primary purpose of the well was to find hydrocarbon accumulations of significant amounts in the Middle and Lower Jurassic sandstones of the Fangst Group and Tilje Formation. Secondary objectives were to verify the interpretation regarding the structural closure towards north, and to verify the geophysical and structural interpretation and improve the geological, paleontological and geochemical understanding of the area. The well was planned to TD in the Åre Formation.

Operations and results

Wildcat well 6406/3-5 was spudded with Smedvig Drilling semi-submersible rig West Delta on 3 April 1988 and drilled to a total depth of 4283 m in the Early Jurassic Tilje Formation. Shallow gas was registered at 570 m. After pulling out to cement this zone, it was impossible to get back into the hole again. After a new spud 3 May, the 30" was set at 418 m, and 20" at 538 m. A new shallow gas zone was registered at 813 m, and the mud was weighted to 1.35 g/cm. The circulation was lost at 1116 m, and the section was cemented. After this drilling progressed with a mud weight of 1.25 g/cm3. This resulted in lost circulation at 1340 m. Both times it was assumed that that the circulation was lost in the zone around 562 m. The hole was cemented back and drilled to 607 m where a new leak-off test up to 1.34 g/cm was performed. This time there were no problems with the drilling to 1749 m (setting depth of 9 5/8" casing) with mud weight of 1.25 g/CM3. Further drilling to TD proceeded without significant problems. The well was drilled with spud mud down to 545 m, with gypsum/polymer mud from 545 m to 3841 m, and with gel/lignite/lignosulphonate mud from 3841 m to TD.

Top Fangst was encountered at 3817 m. There were weak shows in the top ten meters of the Garn Formation down to 3825 m, with increased resistivity on MWD down to approx. 3828 m. One run was done using Western Atlas FMT with HP and strain gauge. A total of 25 pre test points were measured. By drawing a line through pressure points in the Garn Formation, it gave a gradient of 0.99 g/cc. A normal water gradient of 1.02 g/cc was not achieved due to unstable pressure points in the lower Garn Formation. A pressure shift in the Ile Formation of approximately 75 psi (0.52 Mpa) was observed in the data. It was not possible to draw a gradient line due to few points in the Ile Formation, but a water gradient was interpreted. The Tilje Formation was found to be tight and interpreted as water bearing. One sample was taken in the upper Garn Formation at 3821 m. The sample contained a mixture of formation water and mud filtrate with traces of oil and gas. The chloride concentration of 9100 mg/1 was found to be approximately three times higher than the chloride concentration from the mud filtrate (3000 mg/1). One core was cut in the interval 3815 m to 3837 m in the Garn Formation. As the well was not obligatory, and after it was observed that the Tilje Formation sandstones did not contain any hydrocarbons, the TD of the well was revised to TD in the lower part of the Tilje Formation instead of in the Åre Formation. The well was permanently abandoned on 1 June 1988 as a well with shows.

Testing

No drill stem test was performed

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
550.00	4281.00

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3815.0	3836.0	[m]

Total kjerneprøve lengde [m]	21.0
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder


3815-3820m


3820-3825m


3825-3830m


3830-3835m


3835-3836m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
2000.0	[m]	DC	RRI
2010.0	[m]	DC	RRI
2030.0	[m]	DC	RRI
2050.0	[m]	DC	RRI
2070.0	[m]	DC	RRI
2090.0	[m]	DC	RRI
2110.0	[m]	DC	RRI
2130.0	[m]	DC	RRI
2150.0	[m]	DC	RRI

2170.0	[m]	DC	RRI
2190.0	[m]	DC	RRI
2210.0	[m]	DC	RRI
2230.0	[m]	DC	RRI
2250.0	[m]	DC	RRI
2262.0	[m]	DC	RRI
2280.0	[m]	DC	RRI
2292.0	[m]	DC	RRI
2310.0	[m]	DC	RRI
2322.0	[m]	DC	RRI
2340.0	[m]	DC	RRI
2352.0	[m]	DC	RRI
2370.0	[m]	DC	RRI
2382.0	[m]	DC	RRI
2400.0	[m]	DC	RRI
2412.0	[m]	DC	RRI
2430.0	[m]	DC	RRI
2442.0	[m]	DC	RRI
2460.0	[m]	DC	RRI
2472.0	[m]	DC	RRI
2490.0	[m]	DC	RRI
2502.0	[m]	DC	RRI
2520.0	[m]	DC	RRI
2532.0	[m]	DC	RRI
2550.0	[m]	DC	RRI
2562.0	[m]	DC	RRI
2580.0	[m]	DC	RRI
2592.0	[m]	DC	RRI
2610.0	[m]	DC	RRI
2622.0	[m]	DC	RRI
2640.0	[m]	DC	RRI
2802.0	[m]	DC	RRI
2817.0	[m]	DC	RRI
2832.0	[m]	DC	RRI
2847.0	[m]	DC	RRI
2862.0	[m]	DC	RRI
2877.0	[m]	DC	RRI
2952.0	[m]	DC	RRI
2967.0	[m]	DC	RRI
2982.0	[m]	DC	RRI

2997.0	[m]	DC	RRI
3012.0	[m]	DC	RRI
3027.0	[m]	DC	RRI
3042.0	[m]	DC	RRI
3057.0	[m]	DC	RRI
3072.0	[m]	DC	RRI
3087.0	[m]	DC	RRI
3102.0	[m]	DC	RRI
3117.0	[m]	DC	RRI
3135.0	[m]	DC	RRI
3150.0	[m]	DC	RRI
3165.0	[m]	DC	RRI
3180.0	[m]	DC	RRI
3195.0	[m]	DC	RRI
3675.0	[m]	DC	RRI
3693.0	[m]	DC	RRI
3823.9	[m]	C	RRI
3831.7	[m]	C	RRI
3939.0	[m]	DC	RRI
3954.0	[m]	DC	RRI
3969.0	[m]	DC	RRI
3984.0	[m]	DC	RRI
4014.0	[m]	DC	RRI
4059.0	[m]	DC	RRI
4089.0	[m]	DC	RRI
4119.0	[m]	DC	RRI
4134.0	[m]	DC	RRI
4164.0	[m]	DC	RRI
4179.0	[m]	DC	RRI
4194.0	[m]	DC	RRI
4209.0	[m]	DC	RRI
4224.0	[m]	DC	RRI
4239.0	[m]	DC	RRI
4254.0	[m]	DC	RRI
4263.0	[m]	DC	RRI
4281.0	[m]	DC	RRI

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
333	NORDLAND GP
333	NAUST FM
1488	KAI FM
1897	HORDALAND GP
1897	BRYGGE FM
2253	ROGALAND GP
2253	TARE FM
2318	TANG FM
2382	SHETLAND GP
2382	SPRINGAR FM
2525	NISE FM
2780	KVITNOS FM
3179	CROMER KNOLL GP
3179	LYSING FM
3214	LANGE FM
3703	LYR FM
3732	VIKING GP
3732	SPEKK FM
3765	MELKE FM
3817	FANGST GP
3817	GARN FM
3907	NOT FM
3949	ILE FM
4012	BÅT GP
4012	ROR FM
4139	TILJE FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
1227	pdf	0.77

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
1227_1	pdf	0.86

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
1227_01_WDSS_General_Information	pdf	0.25
1227_02_WDSS_completion_log	pdf	0.29

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
1227_6406_3_5_COMPLETION_REPORT_AND_LOG	pdf	19.29

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL GR	778	1722
CDL CN SPL	3795	4289
DIFL ACL GR CDL	537	1712
DIFL BHC GR	3795	4289
DIFL BHC GR CDL	1722	3796
DIPLOG	3795	4289
FMT GR	3795	4289
MWD - GR RES ROP DIR	334	4280
VSP	334	4200

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	418.0	36	473.0	0.00	LOT
SURF.COND.	20	535.0	26	545.0	1.43	LOT
INTERM.	13 3/8	1722.0	17 1/2	1749.0	1.77	LOT
INTERM.	9 5/8	3797.0	12 1/4	3814.0	1.93	LOT

OPEN HOLE		4283.0	8 1/2	0.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
236	1.04	100.0		WATER BASED	12.05.1987
236	1.09			WATER BASED	12.05.1987
348	1.03			WATER BASED	05.04.1988
380	1.03			WATER BASED	31.05.1988
400	1.04	100.0		WATER BASED	12.05.1987
418	1.10			WATER BASED	05.04.1988
473	1.05			WATER BASED	06.04.1988
475	1.03			WATER BASED	05.04.1988
545	1.20			WATER BASED	07.04.1988
545	1.20	45.0	5.0	WATER BASED	11.04.1988
545	1.03			WATER BASED	08.04.1988
577	1.23	49.0	5.0	WATER BASED	15.04.1988
610	1.20	15.0	4.0	WATER BASED	30.05.1988
723	1.04			WATER BASED	12.05.1987
723	1.04			WATER BASED	14.05.1987
723	1.07	48.0		WATER BASED	19.05.1987
723	1.17			WATER BASED	19.05.1987
823	1.20	53.0	6.0	WATER BASED	13.04.1988
873	1.19	37.0	11.0	WATER BASED	20.05.1987
905	1.20	51.0	7.5	WATER BASED	11.04.1988
1116	1.20	53.0	5.5	WATER BASED	12.04.1988
1116	1.20	47.0	5.5	WATER BASED	12.04.1988
1123	1.26	42.0	12.5	WATER BASED	20.05.1987
1276	1.31	38.0	10.1	WATER BASED	21.05.1987
1325	1.69	55.0	7.5	WATER BASED	30.05.1988
1352	1.23	48.0	6.0	WATER BASED	14.04.1988
1614	1.23	11.0	3.0	WATER BASED	18.04.1988
1749	1.26	15.0	3.0	WATER BASED	18.04.1988
1749	1.25	13.0	6.0	WATER BASED	18.04.1988
1756	1.70	21.0	4.0	WATER BASED	20.04.1988
2102	1.70	22.0	6.0	WATER BASED	21.04.1988
2102	1.60	18.0	3.0	WATER BASED	22.04.1988
2288	1.68	61.0	6.0	WATER BASED	27.04.1988

2318	1.69	55.0	7.5	WATER BASED	30.05.1988
2370	1.69	52.0	6.0	WATER BASED	27.04.1988
2370	1.69	65.0	8.5	WATER BASED	16.05.1988
2370	1.69	64.0	9.0	WATER BASED	27.04.1988
2370	1.69	59.0	7.5	WATER BASED	27.04.1988
2370	1.69	53.0	8.0	WATER BASED	27.04.1988
2370	1.69	54.0	7.5	WATER BASED	28.04.1988
2370	1.69	52.0	7.5	WATER BASED	29.04.1988
2370	1.69	66.0	9.5	WATER BASED	09.05.1988
2370	1.69	58.0	10.0	WATER BASED	09.05.1988
2370	1.69	58.0	11.0	WATER BASED	09.05.1988
2370	1.69	58.0	10.0	WATER BASED	13.05.1988
2370	1.70	55.0	10.0	WATER BASED	13.05.1988
2370	1.69	53.0	9.5	WATER BASED	13.05.1988
2370	1.69	58.0	10.5	WATER BASED	10.05.1988
2370	1.69	50.0	8.5	WATER BASED	16.05.1988
2370	1.69	60.0	9.0	WATER BASED	16.05.1988
2370	1.69	48.0	6.0	WATER BASED	18.05.1988
2370	1.69	60.0	5.5	WATER BASED	18.05.1988
2370	1.69	68.0	5.0	WATER BASED	19.05.1988
3208	1.69	28.0	8.0	WATER BASED	02.05.1988
3228	1.69	29.0	8.0	WATER BASED	02.05.1988
3303	1.69	26.0	9.0	WATER BASED	02.05.1988
3367	1.69	24.0	10.0	WATER BASED	03.05.1988
3437	1.69	24.0	10.0	WATER BASED	04.05.1988
3456	1.69	25.0	10.0	WATER BASED	05.05.1988
3456	1.69	24.0	9.0	WATER BASED	06.05.1988
3623	1.69	49.0	5.5	WATER BASED	27.05.1988
3815	1.24	52.0	3.0	WATER BASED	20.05.1988
3856	1.24	41.0	7.0	WATER BASED	26.05.1988
3906	1.24	19.0	3.0	WATER BASED	24.05.1988
4073	1.24	21.0	4.0	WATER BASED	24.05.1988
4140	1.24	27.0	3.0	WATER BASED	24.05.1988
4283	1.24	27.0	3.5	WATER BASED	24.05.1988
4283	1.24	27.0	3.5	WATER BASED	25.05.1988

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]
1227_Formation_pressure_(Formasjonstrykk)	pdf	0.28