



Generell informasjon

Brønnbane navn	6406/1-1
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORWEGIAN SEA
Felt	KRISTIN
Funn	6406/1-1 (Erlend Nord)
Brønn navn	6406/1-1
Seismisk lokalisering	HWM94-innlinje 2061 & krysslinje 841
Utvinningstillatelse	257
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	998-L
Boreinnretning	TRANSOCEAN ARCTIC
Boredager	67
Borestart	05.04.2001
Boreslutt	10.06.2001
Frigitt dato	10.06.2003
Publiseringsdato	07.11.2005
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	GAS/CONDENSATE
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	EARLY JURASSIC
1. nivå med hydrokarboner, formasjon.	TOFTE FM
Avstand, boredekk - midlere havflate [m]	24.0
Vanndybde ved midlere havflate [m]	344.0
Totalt målt dybde (MD) [m RKB]	5057.0
Totalt vertikalt dybde (TVD) [m RKB]	5057.0
Maks inklinasjon [°]	1.4
Temperatur ved bunn av brønnbanen [°C]	172
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	ÅRE FM
Geodetisk datum	ED50



NS grader	64° 54' 28.39" N
ØV grader	6° 17' 41.75" E
NS UTM [m]	7201105.16
ØV UTM [m]	372022.78
UTM sone	32
NPDID for brønnbanen	4262

Brønnhistorie

General

Well 6406/1-1 was drilled on the Northern segment of the Erlend structure in the Norwegian Sea. The main objective was to test the hydrocarbon potential of the Early Jurassic Tofte and Tilje Formations. Planned TD was 50 m into the Åre Formation.

Operations and results

Wildcat well 6406/1-1 was spudded with the semi-submersible installation Transocean Arctic on 5 April 2001 and drilled to TD at 5057 m in the Early Jurassic sediments of the Åre Formation. The well was drilled using seawater/bentonite to 1443 m, a Glydril mud system through the 17 1/2" section (to 3016 m) and Versapro oil-based mud through the 12 1/4" and 8 1/2" sections to TD.

The well confirmed that the reservoir in this segment is the Tofte and the Tilje formations. The Tofte formation is a dominantly tidal influenced fan/bread delta sandstone unit. The Tilje formation is a more heterogeneous tidal sand/shale formation. Due to almost complete core coverage of the Tofte formation, the petrophysical evaluations are based upon core measurements of porosity and permeability. For the Tilje formation there is no core measurements except some sidewall cores, which gives more uncertainty. Both the Tofte and the Tilje formation have good reservoir quality due to medium to coarse-grained sandstone, extensive chlorite coating and pyrobitumen.

The upper part of Tofte (18m) was found to be gas/condensate filled and the lower part of the Tofte and the Tilje formations were water-bearing. Logs and pressure data gave a gas/water contact (FWL) at 4684.0 m (4659.7 m TVD MSL). Organic geochemical analyses indicated oil stain throughout much of the Tofte sand interval and minor oil stain could also be present in the Tilje and Åre Formation sands. The use of oil-based mud precluded quantification and characterisation of these stains. The well was found thermally immature for hydrocarbon generation to a depth of approximately 3200 m, early mature to approximately 3800 m, mature for oil generation from to approximately 4400 m, and mature for light oil/condensate and wet gas generation below 4400 m. The best source rocks in the well position were found in claystones of the Tilje Formation. These are predominantly gas prone. The Spekk Formation is not present in the well.

Seven conventional cores were cut in the Tofte reservoir from 4666 m in the condensate zone to 4791 m in the water zone. MDT samples were taken in the Tofte Formation at 4679.8 m in the condensate zone, at 4685 m just below the GWC, and at 4780.2 m in the water zone.

The well was permanently abandoned on 10 June 2001 as a gas/condensate discovery well.

Testing

No drill stem test was performed.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1420.00	5057.00
Borekaks tilgjengelig for prøvetaking?	
YES	

Borekjerper i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	4680.0	4681.5	[m]
2	4681.5	4684.6	[m]
3	4685.0	4704.2	[m]
4	4704.2	4715.3	[m]
5	4716.0	4745.7	[m]
6	4746.0	4756.6	[m]
7	4756.6	4792.0	[m]

Total kjerneprøve lengde [m]	110.5
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



4680-4681m



4681-4684m



4685-4690m



4690-4695m



4695-4700m



4700-4704m



4704-4709m



4709-4714m



4714-4715m



4716-4721m



4721-4726m



4726-4731m



4731-4736m



4736-4741m



4741-4745m



4746-4751m



4751-4756m



4756-4757m



4756-4761m



4761-4766m



4766-4771m



4771-4776m



4776-4781m



4781-4786m



4786-4791m



4791-4792m

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
369	NORDLAND GP
369	NAUST FM
1592	KAI FM
2005	HORDALAND GP
2005	BRYGGE FM
2408	ROGALAND GP
2408	TARE FM
2473	TANG FM
2530	SHETLAND GP



2530	SPRINGAR FM
2719	NISE FM
2891	KVITNOS FM
3523	CROMER KNOLL GP
3523	LYSING FM
3541	LANGE FM
3594	NO FORMAL NAME
3659	LANGE FM
4407	NO FORMAL NAME
4599	LANGE FM
4666	BÅT GP
4666	TOFTE FM
4806	TILJE FM
4996	ÅRE FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
4262	pdf	0.45

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
4262_1	pdf	2.02

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
4262_6406_1_1_COMPLETION_LOG	.pdf	4.40
4262_6406_1_1_COMPLETION_REPORT	.PDF	48.28

Logger





Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
AIT DSI EMS	4611	5059
IPLT	4611	5059
MDT GR	4665	4674
MDT GR ACTS	4669	5045
MDT GR ACTS	4679	4690
MDT GR ACTS	4679	5048
MSCT GR	4679	5028
MWD - EWR DGR SLD SON	3005	4620
MWD - MPR	4611	5057
MWD - MPR HGR	430	1415
MWD - MPRL	1415	3016
VSP GR	3000	4040
VSP GR	4140	4970

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	429.0	36	429.0	0.00	LOT
SURF.COND.	20	1405.0	26	1411.0	1.63	LOT
INTERM.	13 3/8	3008.0	17 1/2	3015.0	1.99	LOT
INTERM.	9 5/8	4611.0	12 1/4	4620.0	2.16	LOT
OPEN HOLE		5057.0	8 1/2	5057.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
400	1.03			BENTONITE/FW	
439	1.03			BENTONITE/FW	
1087	1.03	14.0		BENTONITE/FW	
1440	1.03	13.0		CMC/SEAWATER	
1922	1.45	16.0		GLYDRILL	
2600	1.64	27.0		GLYDRILL	
2800	1.64	27.0		GLYDRILL	
2860	1.64	28.0		GLYDRILL	
3016	1.64	26.0		GLYDRILL	



3400	1.76	38.0		VERSAPRO	
3850	1.78	38.0		VERSAPRO	
4400	1.87	48.0		VERSAPRO	
4620	1.87	44.0		VERSAPRO	
4685	2.04	51.0		VERSAPRO	
4756	2.04	50.0		VERSAPRO	
5045	2.02	46.0		VERSAPRO	
5057	2.02	49.0		VERSAPRO	

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]
4262_Formalion_pressure_(Formasjonstrykk)	PDF	0.29

