Generell informasjon

Brønnbane navn	35/11-13
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	BYRDING
Funn	35/11-13 Byrding
Brønn navn	35/11-13
Seismisk lokalisering	MN92001R03:inline934 & crossline 976
Utvinningstillatelse	090
Boreoperatør	Norsk Hydro Produksjon AS
Boretillatelse	1092-L
Boreinnretning	DEEPSEA TRYM
Boredager	72
Borestart	18.03.2005
Boreslutt	28.05.2005
Frigitt dato	28.05.2007
Publiseringsdato	28.02.2008
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL/GAS
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	INTRA HEATHER FM SS
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	362.0
Totalt målt dybde (MD) [m RKB]	3291.5
Totalt vertikalt dybde (TVD) [m RKB]	3291.0
Maks inklinasjon [°]	2
Temperatur ved bunn av brønnbanen [°C]	122
Eldste penetrerte alder	MIDDLE JURASSIC
Eldste penetrerte formasjon	HEATHER FM
Geodetisk datum	ED50

NS grader	61° 9' 44.1'' N
ØV grader	3° 32' 21.4'' E
NS UTM [m]	6781140.46
ØV UTM [m]	529019.63
UTM sone	31
NPDID for brønnbanen	5063

Brønnhistorie

General

Well 35/11-13 is an exploration well in PL 090B on the Astero prospect, which is located north of the Fram West field. The primary objectives were to test the presence and type of hydrocarbons in the Oxfordian Turbidite sands of the Astero prospect. The chosen location was designed to test the Astero prospect within structural closure and stratigraphic trap, close to the top of the structure, in an area where there was good HC indication with thick reservoir sand thickness, leaving acceptable up dip volumes.

Operations and results

Well 35/11-13 was spudded with the semi-submersible installation Deepsea Trym on 18 March 2005 and drilled to TD at 3296 m in sediments of the Late Jurassic Heather Formation. The well was drilled without significant technical problems or delays. The mud used was spud mud down to 701 m and "Aquadrill" glycol mud from 701 m to TD.

Water wet Paleocene sandstones were penetrated at 1697 - 1752 m (Heimdal Formation) and at 1842 - 1923 m (Ty Formation). The well encountered a 111 m thick Draupne Formation at 2902 m. The Heather Formation was encountered at 3013 m with Intra-Heather Oxfordian turbiditic sandstones from 3096 m to 3206 m. The sandstones were hydrocarbon bearing and from MDT pressure test results, a gas oil contact was inferred at 3098 m and an oil water contact (FWL) at 3137 m.

Two cores were cut in the interval 3100 to 3142 m in the Oxfordian turbidites. They cores comprised mainly sandstones with occasional thin siltstones. MDT fluid samples were taken at four levels across the reservoir: 3097.0 m (gas and 0.789 g/cm3 oil), 3107.0 m (0.848 g/cm3 Oil), 3128.0 m (Oil), and 3157.5 m (Water).

The well was permanently abandoned on 28 May 2005 as an oil and gas discovery.

Testing

A Drill Stem Test was undertaken at 3111.5 to 3130 m in the oil-bearing zone of the Oxfordian sands. A fixed choke size of 32/64" was selected for the main flow period achieving average flow rates of 500 m3/day oil and 78000 m3/day of gas (a total of 2.7 m3 produced water was recorded). A maximum of 2.5 ppm H2S and 6 % CO2 was measured during this period. The oil gravity at 15 deg C was 36 deg API and the GOR was 160 Sm3/Sm3. The formation temperature at mid perforation was determined to 118 deg C.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
710.00	3292.00

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3100.0	3114.4	[m]
2	3115.0	3134.3	[m]

Total kjerneprøve lengde [m]	33.7
Kjerner tilgjengelig for prøvetaking?	YES

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
3104.4	[m]	C	GEOSTRAT
3105.3	[m]	C	GEOSTR
3106.8	[m]	C	GEOSTR
3109.5	[m]	C	GEOSTR
3115.2	[m]	C	GEOSTR
3125.8	[m]	C	GEOSTR
3127.5	[m]	C	GEOSTR
3132.8	[m]	C	GEOSTR
3133.7	[m]	C	GEOSTR

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	TEST 1	0.00	0.00	OIL	12.05.2005 - 17:15	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
387	NORDLAND GP
763	HORDALAND GP
1541	ROGALAND GP
1541	BALDER FM
1553	LISTA FM
1598	SELE FM
1697	NO FORMAL NAME
1752	LISTA FM
1769	VÅLE FM
1842	NO FORMAL NAME
1923	VÅLE FM
1938	SHETLAND GP
1938	JORSALFARE FM
2088	KYRRE FM
2565	TRYGGVASON FM
2626	BLODØKS FM
2646	SVARTE FM
2671	CROMER KNOLL GP
2671	RØDBY FM
2700	ÅSGARD FM
2902	VIKING GP
2902	DRAUPNE FM
3013	HEATHER FM
3096	INTRA HEATHER FM SS
3206	HEATHER FM

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
5063_1	pdf	0.38
5063_2	pdf	0.31

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
MDT GR	3097	3205

MDT GR	3097	3157
MSCT GR	2960	3151
MWD LWD - DIR ECD	386	476
MWD LWD - DIR GR RES ECD	476	3291
SP DSI HRLA PEX ECS	2925	3268
VSP GR	1611	3290

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	471.0	36	474.0	0.00	LOT
SURF.COND.	20	695.0	26	701.0	1.47	LOT
INTERM.	13 3/8	1751.0	17 1/2	1757.0	1.64	LOT
INTERM.	9 5/8	2924.0	12 1/4	2932.0	1.70	LOT
LINER	7	3290.0	8 1/2	3291.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
441	1.05			WATER BASED	
474	1.50			WATER BASED	
701	1.20	13.0		WATER BASED	
923	1.20	12.0		WATER BASED	
1500	1.30	11.0		WATER BASED	
1757	1.34	17.0		WATER BASED	
1781	1.30	16.0		WATER BASED	
2555	1.30	15.0		WATER BASED	
2690	1.30	11.0		WATER BASED	
2814	1.30	14.0		WATER BASED	
2932	1.30	16.0		WATER BASED	
3100	1.30	15.0		WATER BASED	
3142	1.30	17.0		WATER BASED	
3290	1.10			WATER BASED	
3291	1.30	18.0		WATER BASED	

Tynnslip i Sokkeldirektoratet

Dybde	Enhet
3133.00	[m]
3123.76	[m]
3111.43	[m]
3103.50	[m]

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]
5063_Formation_pressure_(Formasjonstrykk)	pdf	0.22