



Generell informasjon

Brønnbane navn	1/3-10
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	OSELVAR
Funn	1/3-6 Oselvar
Brønn navn	1/3-10
Seismisk lokalisering	BPN 9202 R02 3D dataset inline 904 & crossline 3018
Utvinningstillatelse	274
Boreoperatør	DONG E&P Norge AS
Boretillatelse	1154-L
Boreinnretning	MÆRSK GUARDIAN
Boredager	75
Borestart	25.10.2007
Boreslutt	07.01.2008
Frigitt dato	07.01.2010
Publiseringsdato	07.01.2010
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL/GAS
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	PALEOCENE
1. nivå med hydrokarboner, formasjon.	FORTIES FM
Avstand, boredekk - midlere havflate [m]	45.0
Vanndybde ved midlere havflate [m]	72.0
Totalt målt dybde (MD) [m RKB]	3288.0
Totalt vertikalt dybde (TVD) [m RKB]	3288.0
Maks inklinasjon [°]	1.1
Temperatur ved bunn av brønnbanen [°C]	135
Eldste penetrerte alder	PALEOCENE
Eldste penetrerte formasjon	LISTA FM



Geodetisk datum	ED50
NS grader	56° 55' 39.86" N
ØV grader	2° 42' 20.69" E
NS UTM [m]	6309521.94
ØV UTM [m]	482089.29
UTM sone	31
NPDID for brønnbanen	5614

Brønnhistorie

General

Well 1/3-10 is located on the Hydra High, ca 20 km south-south west of the Ula Field in the North Sea. It was drilled to appraise the oil and gas bearing Late Paleocene Forties Sandstone in the Oselvar structure, first discovered by the 1/3-6 well drilled by Elf Aquitaine Norway A/S in 1991. The main goal of the well was to acquire sufficient reservoir data to make a decision on future development of the Oselvar discovery.

Operations and results

Appraisal well 1/3-10 was spudded with the jack-up installation Mærsk Guardian on 25 October 2007 and drilled to TD at 3288 m in the Paleocene Lista Formation. The well was drilled and tested without significant technical problems. It was drilled with seawater / PHB down to 816 m, with KCl/Polymer mud from 816 to 1300 m, and with Carbo SEA OBM from 1300 to TD.

The top of the Hordaland Group came in deep (19 m) compared to prognosis, as did the Balder and Sele Formations of the Rogaland Group (12 m and 5 m deep respectively). More significantly, a thicker than prognosed Sele Formation resulted in the target reservoir Forties sandstone coming in at 3153 m, 24 m deep compared to prognosis. The thickness of the Forties Sandstone however, was 52 m, which is only one meter thinner than prognosed. Of this thickness 32 m was designated as net reservoir using a porosity cut-off value of 10%. The average porosity was 17.7 % and the water saturation was 44.9%. The Forties Formation contained light oil with a free water level for the area estimated at 3245 m. Shows were only recorded in the target Forties Formation sandstones.

The Forties Formation Sandstone was cored from 3159 to 3232 m with 99.8% recovery. An RCI log was run for pressure and fluid sampling. Four light oil gradients with increasing density downwards could be identified from these data. Light oil fluid samples were taken in Run 2A at two depths, 3162.2 m and 3186.3 m. Run 2D samples were taken at 3203.3 m (approximately 70% water and 30% oil), and at 3196.5 m (about 80% light oil and 20% water).

The well was plugged back for sidetracking on 7 January 2008 as an oil and gas appraisal well.

Testing

The Forties Formation was tested by an open hole ("barefoot") DST in the 8 1/2" section from 3158 to TD. The test produced 457 Sm³ oil and 212453 m³ gas /day through a 48/64" choke in the main flow period. The GOR was 465 m³/m³, the oil density was 0.791 g/cm³, and the gas gravity was 0.855 (air = 1), with 5 ppm H₂S and 2.5 % CO₂.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
250.00	3288.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3159.0	3231.8	[m]

Total kjerneprøve lengde [m]	72.8
Kjerner tilgjengelig for prøvetaking?	YES

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST		0.00	0.00			YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
117	NORDLAND GP
1685	HORDALAND GP
3059	ROGALAND GP
3059	BALDER FM
3069	SELE FM
3153	FORTIES FM
3205	SELE FM
3228	LISTA FM



Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3158	3288	19.0

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0	9.000		38.000	

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0	457	212453	0.791	0.855	465

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
DSL RCI SV	3162	3203
MWD LWD - ...DGR DM BAT	3153	3288
MWD LWD - PCD	117	225
MWD LWD - PCDC DGR EWR PWD	820	1300
MWD LWD - PCDC DGR EWR PWD BAT	1300	3158
MWD LWD - PWD CTN ACAL ALD EWR..	3153	3288
VSP GR	1365	3270
WGI DSL RCI	3160	3216

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	215.0	36	225.0	0.00	LOT
SURF.COND.	18 5/8	810.0	24	816.0	0.00	LOT
INTERM.	13 3/8	1294.0	17 1/2	1300.0	1.50	LOT
INTERM.	9 5/8	3153.0	12 1/4	3153.0	1.90	LOT
OPEN HOLE		3158.0	8 1/2	3288.0	0.00	LOT



Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
211	1.04	10.0		SPUD MUD	
225	1.04	10.0		SPUD MUD	
426	1.04	21.0		SPUD MUD	
805	1.04	11.0		SPUD MUD	
816	1.20	15.0		SPUD MUD	
1252	0.00			OIL (REGULAR)	
1300	1.75	49.0		OIL (REGULAR)	
1300	1.30	17.0		POLYMER	
1732	1.75	47.0		OIL (REGULAR)	
1964	1.75	49.0		OIL (REGULAR)	
2272	1.60	46.0		OIL (REGULAR)	
2920	1.75	46.0		OIL (REGULAR)	
2949	1.75	513.0		OIL (REGULAR)	
2954	1.73	41.0		OIL (REGULAR)	
3126	1.73	49.0		OIL (REGULAR)	
3158	1.75	46.0		OIL (REGULAR)	
3176	1.73	47.0		OIL (REGULAR)	
3232	1.39	35.0		OIL (REGULAR)	
3288	1.39	37.0		OIL (REGULAR)	
3288	1.39	34.0		OIL (REGULAR)	
3355	1.71	46.0		OIL (REGULAR)	
3382	1.68	46.0		OIL (REGULAR)	
3537	1.66	49.0		OIL (REGULAR)	
3632	1.66	47.0		OIL (REGULAR)	

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]
5614 Formation pressure (Formasjonstrykk)	pdf	0.23

