



Generell informasjon

Brønnbane navn	16/2-3
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Funn	16/2-3 (Ragnarock)
Brønn navn	16/2-3
Seismisk lokalisering	ST06M02-inline 1728 & crossline 752
Utvinningstillatelse	265
Boreoperatør	Statoil ASA (old)
Boretillatelse	1139-L
Boreinnretning	WEST EPSILON
Boredager	59
Borestart	01.08.2007
Boreslutt	28.09.2007
Frigitt dato	28.09.2009
Publiseringsdato	28.09.2009
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL/GAS
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	PALEOCENE
1. nivå med hydrokarboner, formasjon.	EKOFISK FM
2. nivå med hydrokarboner, alder	LATE CRETACEOUS
2. nivå med hydrokarboner, formasjon	TOR FM
Avstand, boredekk - midlere havflate [m]	49.0
Vanndybde ved midlere havflate [m]	113.0
Totalt målt dybde (MD) [m RKB]	1905.0
Totalt vertikalt dybde (TVD) [m RKB]	1905.0
Maks inklinasjon [°]	0.6
Temperatur ved bunn av brønnbanen [°C]	89
Eldste penetrerte alder	PRE-DEVONIAN



Eldste penetrerte formasjon	BASEMENT
Geodetisk datum	ED50
NS grader	58° 53' 0.3" N
ØV grader	2° 22' 24.3" E
NS UTM [m]	6527389.84
ØV UTM [m]	463878.26
UTM sone	31
NPDID for brønnbanen	5551

Brønnhistorie

General

Well 16/2-3 was drilled on the Ragnarrock prospect in the North Sea. The Ragnarrock prospect is situated on the top of the Utsira High, southeast of the Verdandi discovery in PL 167 and east of the Gudrun field in PL 025. The main objective was to prove presence of hydrocarbons in the Tor Formation of Maastrichtian age and to test its permeability and its productivity. The secondary target was to check the presence of hydrocarbon in the Basement and to test its permeability and its productivity.

Operations and results

Well 16/2-3 was spudded with the jack-up installation West Epsilon on 1 August 2007 and drilled to TD at 1905 m, 9 m into basement rock. No significant problem was encountered during drilling, but an incident with a falling object during P&A caused several days stand still for investigation before the well could be abandoned. No shallow gas was observed by the ROV at the well head or by the MWD while drilling the 36" hole and the 12 1/4" pilot hole. The well was drilled with spud mud down to 640 m and with KCl/polymer/glycol mud from 640 m to TD.

The well encountered the Tor reservoir section at 1716 m, 6 m shallower than prognosed. A HC discovery was proven in the Tor Formation but the results from the MDT suggested the formation to be tight and tightening with depth. The basement was penetrated at 1894 m, 22 m deeper than prognosed. Only occasional dead oil stain was found in the upper 7 m of the basement so no further formation evaluation was performed here. No oil shows were recorded above top Tor Formation.

Three cores were cut from 1715.7 to 1852.5 m. The first core covered the transition zone between the Lista and Tor Formations. Cores 2 and 3 were cut in the Tor and Hod Formations. Two mini-DST runs were performed for pressure points and fluid sampling in the Tor Formation. Sampling was performed at depths 1716.8 m (gas), 1720.5 m (oil) and 1742.6 m (oil), 1769.9 m, and 1781.1. Only the samples at 1720.5 m were found to be representative of reservoir fluid. PVT analyses of these samples gave a single stage GOR around 140 Sm³/Sm³ and an oil density of 0.861 /cm³. Sample bottles from depth 1716.8 m, 1742.6 m, 1769.9 m and 1781.1 contained mainly water

The well was permanently abandoned on 28 September 2007 as an oil discovery.

Testing

No drill stem test was performed.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
290.00	1905.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1715.7	1749.9	[m]
2	1743.0	1798.6	[m]
3	1798.0	1852.9	[m]

Total kjerneprøve lengde [m]	144.6
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		1720.50	0.00	OIL		YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
162	NORDLAND GP
817	UTSIRA FM
1051	HORDALAND GP
1079	SKADE FM
1150	NO FORMAL NAME
1251	GRID FM
1267	NO FORMAL NAME
1617	ROGALAND GP
1617	BALDER FM
1636	SELE FM



1651	LISTA FM
1716	SHETLAND GP
1716	EKOFISK FM
1717	TOR FM
1814	HOD FM
1875	CROMER KNOLL GP
1875	RØDBY FM
1889	SOLA FM
1894	BASEMENT

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
5551	pdf	0.24

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
5551_1	pdf	0.20

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CMR PEX HRLA	1693	1905
FMI DSI	1274	1900
MDT PP SAMPLE	1716	1864
MDT PP SAMPLE	1716	1864
MWD - PP	162	280
MWD - PP ARC VISION	271	640
MWD - PP ARC VISION	631	1695
MWD - PP ARC VISION	1852	1905
MWD - PP GEO VISION	1667	1715
ZO VSP	1467	1905





Foringsrør og formasjonsstyrketester

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm ³]	Type formasjonstest
CONDUCTOR	30	267.0	36	280.0	1.15	LOT
SURF.COND.	13 3/8	631.0	17 1/2	640.0	1.45	LOT
INTERM.	9 5/8	1693.0	12 1/4	1695.0	1.45	LOT
OPEN HOLE		1905.0	8 1/2	1905.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm ³]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
271	1.05			SPUD MUD	
274	1.05			SPUD MUD	
280	1.05			SPUD MUD	
392	1.09	10.0		SPUD MUD	
640	1.08	20.0		SPUD MUD	
1200	1.35	52.0		SPUD MUD	
1695	1.20	28.0		KCL/POLYMER/GLY COL	
1720	1.20	25.0		KCL/POLYMER/GLY COL	
1721	1.20	26.0		KCL/POLYMER/GLY COL	

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]
5551 Formation pressure (Formasjonstrykk)	pdf	0.18

