



Generell informasjon

Brønnbane navn	16/2-18 S
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Funn	16/2-4
Brønn navn	16/2-18
Seismisk lokalisering	3D survey:LN90STR11 inline 3884 & xline 3174
Utvinningstillatelse	265
Boreoperatør	Statoil Petroleum AS
Boretillatelse	1438-L
Boreinnretning	OCEAN VANGUARD
Boredager	35
Borestart	05.07.2013
Boreslutt	08.08.2013
Frigitt dato	08.08.2015
Publiseringsdato	13.08.2015
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	PRE-DEVONIAN
1. nivå med hydrokarboner, formasjon.	BASEMENT
Avstand, boredekk - midlere havflate [m]	22.0
Vanndybde ved midlere havflate [m]	112.0
Totalt målt dybde (MD) [m RKB]	1970.0
Totalt vertikalt dybde (TVD) [m RKB]	1969.0
Maks inklinasjon [°]	6.6
Temperatur ved bunn av brønnbanen [°C]	83
Eldste penetrerte alder	PRE-DEVONIAN
Eldste penetrerte formasjon	BASEMENT
Geodetisk datum	ED50



NS grader	58° 49' 56.6" N
ØV grader	2° 27' 51.2" E
NS UTM [m]	6521662.41
ØV UTM [m]	469067.54
UTM sone	31
NPDID for brønnbanen	7220

Brønnhistorie

General

Well 16/2-18 S was drilled on the Cliffhanger North prospect west of the Johan Sverdrup Field on the Utsira High in the North Sea. The main objective was to prove hydrocarbons in the Late Jurassic intra-Draupne Formation sandstones and to verify the reservoir quality, fluid property, lateral extension and possible communication with the Johan Sverdrup discovery. The secondary objective of the well was to explore the hydrocarbon potential and reservoir properties in fractured and weathered granitic Basement.

Operations and results

Wildcat well 16/2-18 S was spudded with the semi-submersible installation Ocean Vanguard on 5 July 2013 and drilled to TD at 1970 m in fractured granitic basement rock. The well was drilled with a slightly deviated well path with the purpose of avoiding a prognosed shallow gas anomaly. A 9 7/8" pilot hole was drilled from 201 m to 455 m to check for shallow gas. No shallow gas was seen. No significant problem was encountered in the operations. The well was drilled with seawater and hi-vis sweeps down to 855 m and with KCl/Polymer/Glycol mud from 855 m to TD.

The Intra-Draupne Formation sandstone reservoir was not present at the well location; hence the primary objective of the well was not met. The secondary objective, however, was met by proving oil in weathered and fractured granitic Basement, which was encountered at 1864 m. An oil column of ca 15 m was estimated but no oil/water contact was established. Pressure data showed the discovery to be 2.6 bar higher and with a different oil gradient than in the Johan Sverdrup Field, and thus not in communication. However pressure and sampling data from the 16/2-4 Ragnarrok basement discovery has shown that the 16/2-18 S basement discovery is in communication, making 16/2-18 S well an appraisal of the Ragnarrok discovery. From the combined pressure data for these two wells the gas oil contact for the Ragnarrok discovery is found to be at ca 1862 m (1840 m MSL).

Shows were observed in the upper part of the Shetland Group and in the Basement. The uppermost Shetland Group (Ekofisk Formation) also had high gas readings.

An extensive sample and data acquisition programme was conducted in the upper part of the Basement. Four cores were drilled, but the first core was lost in the hole. Cores 2 - 4 recovered 19.9 m between 1855.5 m in the Åsgard Formation and 1876 m in the Basement. Three dual packer mini-DST's were performed showing limited production properties. Fluid samples were taken at 1866.2 m (gas, oil, and mud) and 1875.1 m (oil).

The well was permanently abandoned on 8 August 2013 as an oil appraisal.

Testing

No drill stem test was performed.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
860.00	1970.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
2	1855.5	1864.9	[m]
3	1864.5	1870.0	[m]
4	1871.0	1876.1	[m]

Total kjerneprøve lengde [m]	20.0
Kjerner tilgjengelig for prøvetaking?	YES

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
881.0	[m]	DC	ROBERTSO
887.0	[m]	DC	ROBERT
893.0	[m]	DC	ROBERT
899.0	[m]	DC	ROBERT
905.0	[m]	DC	ROBERT
911.0	[m]	DC	ROBERT
917.0	[m]	DC	ROBERT
923.0	[m]	DC	ROBERT
927.0	[m]	DC	ROBERT
935.0	[m]	DC	ROBERT
941.0	[m]	DC	ROBERT
947.0	[m]	DC	ROBERT
953.0	[m]	DC	ROBERT
959.0	[m]	DC	ROBERT
965.0	[m]	DC	ROBERT
971.0	[m]	DC	ROBERT
977.0	[m]	DC	ROBERT



Faktasider

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983.0 [m]	DC	ROBERT
989.0 [m]	DC	ROBERT
995.0 [m]	DC	ROBERT
1001.0 [m]	DC	ROBERT
1010.0 [m]	DC	ROBERT
1020.0 [m]	DC	ROBERT
1030.0 [m]	DC	ROBERT
1040.0 [m]	DC	ROBERT
1050.0 [m]	DC	ROBERT
1060.0 [m]	DC	ROBERT
1070.0 [m]	DC	ROBERT
1080.0 [m]	DC	ROBERT
1090.0 [m]	DC	ROBERT
1100.0 [m]	DC	ROBERT
1120.0 [m]	DC	ROBERT
1130.0 [m]	DC	ROBERT
1140.0 [m]	DC	ROBERT
1150.0 [m]	DC	ROBERT
1160.0 [m]	DC	ROBERT
1170.0 [m]	DC	ROBERT
1180.0 [m]	DC	ROBERT
1190.0 [m]	DC	ROBERT
1200.0 [m]	DC	ROBERT
1210.0 [m]	DC	ROBERT
1230.0 [m]	DC	ROBERT
1250.0 [m]	DC	ROBERT
1270.0 [m]	DC	ROBERT
1290.0 [m]	DC	ROBERT
1310.0 [m]	DC	ROBERT
1330.0 [m]	DC	ROBERT
1350.0 [m]	DC	ROBERT
1370.0 [m]	DC	ROBERT
1390.0 [m]	DC	ROBERT
1410.0 [m]	DC	ROBERT
1430.0 [m]	DC	ROBERT
1450.0 [m]	DC	ROBERT
1470.0 [m]	DC	ROBERT
1490.0 [m]	DC	ROBERT
1510.0 [m]	DC	ROBERT
1530.0 [m]	DC	ROBERT



1550.0	[m]	DC	ROBERT
1570.0	[m]	DC	ROBERT
1590.0	[m]	DC	ROBERT
1610.0	[m]	DC	ROBERT
1828.3	[m]	C	ROBERT
1841.0	[m]	DC	ROBERT
1847.0	[m]	DC	ROBERT
1853.0	[m]	DC	ROBERT

Oljeprøver i Sökkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
MDT		1875.12	0.00	OIL		YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
134	NORDLAND GP
134	UNDIFFERENTIATED
782	UTSIRA FM
830	UNDIFFERENTIATED
873	NO FORMAL NAME
914	UNDIFFERENTIATED
934	HORDALAND GP
934	SKADE FM
1034	UNDIFFERENTIATED
1085	NO FORMAL NAME
1141	UNDIFFERENTIATED
1521	ROGALAND GP
1521	BALDER FM
1543	SELE FM
1564	LISTA FM
1611	VÅLE FM
1614	SHETLAND GP
1614	EKOFISK FM
1631	TOR FM



1710	HOD FM
1808	BLODØKS FM
1810	SVARTE FM
1820	CROMER KNOLL GP
1820	RØDBY FM
1853	SOLA FM
1860	ÅSGARD FM
1864	BASEMENT

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
DP MFRAC	1850	1855
FMI SON GR	1170	1971
MDT DP CMR	1628	1960
MWD - ARC TELESCOPE	201	1970
UBI PEX HRLA HNGS	1628	1960
USIT CBL GR	791	1620
VSP	236	1944

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	197.0	36	201.0	0.00	
PILOT HOLE		455.0	9 7/8	455.0	0.00	
SURF.COND.	13 3/8	848.0	17 1/2	855.0	1.55	FIT
INTERM.	9 5/8	1628.0	12 1/4	1629.0	1.62	LOT
OPEN HOLE		1970.0	8 1/2	1970.0	0.00	

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
134	1.35	16.0		Spud Mud	
1607	1.21	27.0		KCl/Polymer/Glycol	
1626	1.20	24.0		KCl/Polymer/GEM	
1629	1.35	30.0		KCl/Polymer/GEM	



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1855	1.20	29.0		KCl/Polymer/Glycol	
1904	1.21	29.0		KCl/Polymer/Glycol	
1970	1.22	26.0		KCl/Polymer/GEM	