



Generell informasjon

Brønnbane navn	16/2-9 S
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	JOHAN SVERDRUP
Funn	16/2-6 Johan Sverdrup
Brønn navn	16/2-9
Seismisk lokalisering	ST09M05-inline 4036 & xline 4012
Utvinningstillatelse	265
Boreoperatør	Statoil Petroleum AS
Boretillatelse	1361-L
Boreinnretning	TRANSOCEAN LEADER
Boredager	35
Borestart	21.08.2011
Boreslutt	24.09.2011
Frigitt dato	24.09.2013
Publiseringsdato	24.09.2013
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	DRAUPNE FM
Avstand, boredekk - midlere havflate [m]	23.5
Vanndybde ved midlere havflate [m]	116.0
Totalt målt dybde (MD) [m RKB]	2082.0
Totalt vertikalt dybde (TVD) [m RKB]	2071.0
Maks inklinasjon [°]	17.2
Temperatur ved bunn av brønnbanen [°C]	85
Eldste penetrerte alder	PRE-DEVONIAN
Eldste penetrerte formasjon	BASEMENT
Geodetisk datum	ED50



NS grader	58° 54' 46.39" N
ØV grader	2° 26' 22.8" E
NS UTM [m]	6530637.43
ØV UTM [m]	467724.91
UTM sone	31
NPDID for brønnbanen	6615

Brønnhistorie



General

Well 16/2-9 S was drilled on the Aldous Major North prospect on the Utsira High in the North Sea. The prospect is separated from the Aldous Major South/Avaldsnes discovery by a North-East trending fault, but was considered as a possible extension of the Aldous Major South. The main objective of the well was to investigate the hydrocarbon potential, reservoir quality and lateral sand distribution in the Late Jurassic Viking Group. The secondary objective of well 16/2-9 S was to explore the hydrocarbon potential in the fractured granitic basement. The third objective of well 16/2-9 S was to investigate the hydrocarbon potential in the Cretaceous age Shetland Chalk Vindballen lead.

Operations and results

Wildcat well 16/2-9 S was spudded with the semi-submersible installation Transocean Leader on 21 August 2011 and drilled to TD at 2082 m (2070.6 m TVD) into Basement rocks. Neither shallow gas nor shallow water flow was observed, and operations went forth without significant problems. The well was drilled with sea water and hi-vis bentonite pills down to 343 m, with KCl/Polymer/GEM Spec 3 mud from 343 m to 1066 m, with Performadril WBM spec 6a mud from 1066 m to 1725 m, and with Low sulphate Performadril WBM mud from 1725 m to TD.

Top expected main reservoir, the Draupne Formation, was picked at 1933.5 m. The intra-Draupne reservoir was unusual and consisted of spiculites. It contained oil. The reservoir proved to be considerably thinner and with much poorer reservoir quality than expected and the oil water contact could not be established exactly. However, based on the saturation profile and results from fluid sampling, the OWC was set at 1941.5 m (1930.1 m TVD / 1906.6 m TVD MSL) with the Free Water Level a few meters further down. The secondary and third objectives, the fractured granitic basement and the Shetland chalk respectively, were dry. There were no oil shows observed in the well apart from in the hydrocarbon bearing reservoir section.

Three cores were taken in the Skagerrak Formation and into the basement at core depths 1952 - 1975.5 m, 1975.5 - 1987 m and 1987.1 - 1991.5 m. The core shifts relative to the logs were 1, 2, and 3 m respectively, for the three cored intervals. MDT wire line fluid samples were taken at 1935.17 m (oil), 1938.2 m (oil), 1941.0 m (water/oil), and at 1941.7 m (oil/water).

The well was permanently abandoned on 24 September 2011. It is classified as an oil appraisal to the Aldous Major South discovery.

Testing

No drill stem test was performed.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
350.00	2082.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1952.0	1974.3	[m]
2	1975.5	1986.9	[m]
3	1987.0	1986.9	[m]

Total kjerneprøve lengde [m]	33.5
Kjerner tilgjengelig for prøvetaking?	YES

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
1050.0	[m]	DC	FUGRO
1070.0	[m]	DC	FUGRO
1090.0	[m]	DC	FUGRO
1110.0	[m]	DC	FUGRO
1130.0	[m]	DC	FUGRO
1150.0	[m]	DC	FUGRO
1170.0	[m]	DC	FUGRO
1190.0	[m]	DC	FUGRO
1210.0	[m]	DC	FUGRO
1230.0	[m]	DC	FUGRO
1250.0	[m]	DC	FUGRO
1270.0	[m]	DC	FUGRO
1290.0	[m]	DC	FUGRO
1310.0	[m]	DC	FUGRO
1330.0	[m]	DC	FUGRO
1350.0	[m]	DC	FUGRO
1370.0	[m]	DC	FUGRO
1390.0	[m]	DC	FUGRO
1410.0	[m]	DC	FUGRO
1430.0	[m]	DC	FUGRO
1450.0	[m]	DC	FUGRO
1470.0	[m]	DC	FUGRO
1490.0	[m]	DC	FUGRO
1510.0	[m]	DC	FUGRO



1530.0 [m]	DC	FUGRO
1550.0 [m]	DC	FUGRO
1570.0 [m]	DC	FUGRO
1590.0 [m]	DC	FUGRO
1610.0 [m]	DC	FUGRO
1630.0 [m]	DC	FUGRO
1650.0 [m]	DC	FUGRO
1670.0 [m]	DC	FUGRO
1690.0 [m]	DC	FUGRO
1710.0 [m]	DC	FUGRO
1724.0 [m]	DC	FUGRO
1731.0 [m]	DC	FUGRO
1737.0 [m]	DC	FUGRO
1743.0 [m]	DC	FUGRO
1749.0 [m]	DC	FUGRO
1755.0 [m]	DC	FUGRO
1761.0 [m]	DC	FUGRO
1767.0 [m]	DC	FUGRO
1773.0 [m]	DC	FUGRO
1779.0 [m]	DC	FUGRO
1785.0 [m]	DC	FUGRO
1791.0 [m]	DC	FUGRO
1797.0 [m]	DC	FUGRO
1803.0 [m]	DC	FUGRO
1809.0 [m]	DC	FUGRO
1827.0 [m]	DC	FUGRO
1851.0 [m]	DC	FUGRO
1857.0 [m]	DC	FUGRO
1863.0 [m]	DC	FUGRO
1869.0 [m]	DC	FUGRO
1875.0 [m]	DC	FUGRO
1881.0 [m]	DC	FUGRO
1887.0 [m]	DC	FUGRO
1893.0 [m]	DC	FUGRO
1899.0 [m]	DC	FUGRO
1902.0 [m]	DC	FUGRO
1908.0 [m]	DC	FUGRO
1914.0 [m]	DC	FUGRO
1920.0 [m]	DC	FUGRO
1926.0 [m]	DC	FUGRO



1932.0	[m]	DC	FUGRO
1938.0	[m]	DC	FUGRO
1944.0	[m]	DC	FUGRO
1953.0	[m]	DC	FUGRO
1959.0	[m]	DC	FUGRO
1965.0	[m]	DC	FUGRO
1971.0	[m]	DC	FUGRO
1977.0	[m]	DC	FUGRO
1983.0	[m]	DC	FUGRO
1989.0	[m]	DC	FUGRO
1995.0	[m]	DC	FUGRO
2001.0	[m]	DC	FUGRO
2007.0	[m]	DC	FUGRO
2013.0	[m]	DC	FUGRO
2019.0	[m]	DC	FUGRO
2025.0	[m]	DC	FUGRO
2031.0	[m]	DC	FUGRO
2037.0	[m]	DC	FUGRO
2043.0	[m]	DC	FUGRO
2055.0	[m]	DC	FUGRO
2061.0	[m]	DC	FUGRO
2073.0	[m]	DC	FUGRO
2079.0	[m]	DC	FUGRO

Oljeprøver i Søkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
MDT		1935.20	0.00	OIL	11.03.2011 - 00:00	YES
MDT		1938.20	0.00	OIL	11.03.2011 - 00:00	YES
MDT		1941.70	0.00	OIL	11.03.2011 - 00:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
140	NORDLAND GP



793	UTSIRA FM
1031	HORDALAND GP
1031	SKADE FM
1090	NO FORMAL NAME
1197	GRID FM
1241	NO FORMAL NAME
1611	ROGALAND GP
1611	BALDER FM
1633	SELE FM
1674	LISTA FM
1746	SHETLAND GP
1746	EKOFISK FM
1771	TOR FM
1823	HOD FM
1866	CROMER KNOLL GP
1866	RØDBY FM
1906	SOLA FM
1922	ÅSGARD FM
1934	VIKING GP
1934	DRAUPNE FM
1935	INTRA DRAUPNE FM SS
1941	DRAUPNE FM
1949	HEGRE GP
1949	SKAGERRAK FM
1986	BASEMENT

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
FMI HNGS HRLA	1724	2074
MDT	1934	1965
MDT	1935	1995
MSIP PEX	1540	2075
MWD - ARC PP	216	1066
MWD - GVR ARC PUP	1724	2083
MWD - PDX5 ARC PUP	1066	1724
MWD - PP	138	216
USIT CBL	351	980
USIT CBL	1529	1720



VSI-1	1648	2072
VSI-4	151	1709

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	212.0	36	216.0	0.00	LOT
SURF.COND.	20	332.0	26	343.0	1.41	LOT
INTERM.	13 3/8	1059.0	17 1/2	1066.0	1.74	LOT
INTERM.	9 5/8	1724.0	12 1/4	1725.0	2.04	LOT
OPEN HOLE		2082.0	8 1/2	2082.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	flytegrense [Pa]	Type slam	Dato, måling
614	1.25	20.0		KCl/Polymer/GEM	
1066	1.25	18.0		KCl/Polymer/GEM	
1067	1.23	20.0		Performadril	
1361	1.20	22.0		Performadril Low Sulphate	
1724	1.28	14.0		Performadril	
1725	1.20	26.0		Performadril	
1725	1.29	31.0		Performadril	
1987	1.20	23.0		Performadril Low Sulphate	
2082	1.20	22.0		Performadril Low Sulphate	
2982	1.20	24.0		Performadril Low Sulphate	

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]
6615 Formation pressure (Formasjonstrykk)	pdf	0.22

