



Generell informasjon

Brønnbane navn	16/2-6
Type	EXPLORATION
Formål	WILDCAT
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	16/2-6
Seismisk lokalisering	Ln0902-inline2210 & crossline 7260
Utvinningstillatelse	501
Boreoperatør	Lundin Norway AS
Boretillatelse	1311-L
Boreinnretning	TRANSOCEAN WINNER
Boredager	63
Borestart	20.07.2010
Boreslutt	20.09.2010
Frigitt dato	20.09.2012
Publiseringsdato	16.10.2012
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	INTRA DRAUPNE FM SS
2. nivå med hydrokarboner, alder	MIDDLE JURASSIC
2. nivå med hydrokarboner, formasjon	VESTLAND GP
Avstand, boredekk - midlere havflate [m]	26.0
Vanndybde ved midlere havflate [m]	115.0
Totalt målt dybde (MD) [m RKB]	2131.0
Totalt vertikalt dybde (TVD) [m RKB]	2131.0
Eldste penetrerte alder	LATE PERMIAN
Eldste penetrerte formasjon	ZECHSTEIN GP
Geodetisk datum	ED50



NS grader	58° 49' 25.26" N
ØV grader	2° 36' 54.76" E
NS UTM [m]	6520633.12
ØV UTM [m]	477779.05
UTM sone	31
NPDID for brønnbanen	6374

Brønnhistorie

General

Well 16/2-6 was drilled on the Avaldsnes prospect on the Utsira High in the North Sea. The primary objective was to prove oil in Jurassic and pre-Jurassic sandstone in the Karmsund Graben. The secondary objective was to prove oil in the Paleocene Ty Formation Sandstone. Planned TD was 50 m into solid basement rock.

Operations and results

Wildcat well 16/2-6 was spudded with the semi-submersible installation Transocean Winner on 20 July 2010 and drilled to TD at 2131 m. The well encountered severe loss problems in the Zechstein Group and a technical sidetrack was drilled (well 16/2-6 T2) through the reservoir. The sidetrack was kicked off from 1830 m and drilled to 2131 m where severe losses again were experienced and the well was completed without reaching its planned TD. All wire line logging and a DST were performed in the sidetrack. The well was drilled with seawater and hi-vis pills down to 748 m and with Glydril WBM (3- 5% glycol) from 748 m to TD.

No Ty Formation sand was seen in the well. Top Viking Group, Draupne Formation was encountered at 1925.5 m (1927.5 m in sidetrack) and top of the Draupne reservoir sand came in at 1931 m (1931 m in sidetrack). The top of the reservoir consists of an 8 m thick, coarse to very coarse, sand. Underlying this is finer grained sand laminated with shale. A reworked calcareous formation lies on top of the Triassic. Pressure points, MDT sampling and DST results confirmed the presence of oil in the reservoir with an oil-water contact at 1948.6 m. Residual oil was found down to 1966 m. In addition to the main reservoir section, oil was sampled in calcareous slumps with vuggy porosity between the Jurassic sandstone and the Triassic. Apart from this there were no shows of hydrocarbons reported elsewhere in the well bores.

Three conventional cores were cut from 5 m into the Draupne sandstone, through the Middle Jurassic Vestland Group down to 1961.5 m in the Late Triassic Skagerrak Formation. MDT fluid samples were taken at 1933.2 m (oil), 1936.0 m (oil), 1945.2 m (oil), 1948 m (oil and water), 1953 m (water), and at 1962.5 m (water and oil).

The well was permanently abandoned on 20 September 2010 on as an oil discovery.

Testing

A drill stem test was performed from the interval 1931.8 m to 1938.1 m. The test flowed 786 Sm³ oil and 18700 Sm³ through a 52/64" choke. At single stage separation The GOR was 39.6 Sm³/Sm³, the oil density was 0.891 g/cm³, and the gas gravity was 1.012 (air = 1). The maximum DST temperature was 82.7 deg C. The interpretation of the DST indicated a continuous reservoir without barriers in a radius of 2-3 km with extremely good flow characteristics.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
750.00	2131.00

Borekaks tilgjengelig for prøvetaking?	YES
--	-----

Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1935.0	1939.5	[m]
2	1939.5	1956.2	[m]
3	1958.6	1960.3	[m]

Total kjerneprøve lengde [m]	22.9
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		11.09.2010 - 00:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
141	NORDLAND GP
829	UTSIRA FM
876	NO FORMAL NAME
939	HORDALAND GP
939	SKADE FM
1097	NO FORMAL NAME
1468	ROGALAND GP
1468	BALDER FM
1493	SELE FM



1505	LISTA FM
1604	VÅLE FM
1628	SHETLAND GP
1628	EKOFISK FM
1639	TOR FM
1669	HOD FM
1775	BLØDØKS FM
1777	SVARTE FM
1805	CROMER KNOLL GP
1805	RØDBY FM
1907	SOLA FM
1912	ÅSGARD FM
1926	VIKING GP
1926	DRAUPNE FM
1931	INTRA DRAUPNE FM SS
1938	DRAUPNE FM
1942	VESTLAND GP
1955	NO GROUP DEFINED
1955	SKAGERRAK FM
2075	ZECHSTEIN GP

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
6374_01_16_2_6_gch_transfer_1	txt	0.00
6374_02_16_2_6_gch_results_1	txt	0.29

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	1932	1938	20.6

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningsstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				





Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	780				

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CMR HRLA XPT	1835	2060
FMI MSIP	1300	2070
HRLA PEX ECS HNGS	1803	2070
LWD - GR RES DEN NEU SON PWD DIR	748	2131
LWD - GR RES PWD DIR	141	750
LWD - GR RES PWD DIR	1803	2068
LWD - GR RES SON DEN NEU	2083	2122
LWD - PWD DIR	141	748
MDT GR	1932	2027
MSCT GR	1820	2053
VSP GR	115	2072

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	218.0	36	220.0	0.00	LOT
SURF.COND.	13 3/8	742.0	17 1/2	748.0	1.81	LOT
PILOT HOLE		750.0	9 7/8	750.0	0.00	LOT
INTERM.	9 5/8	1803.0	12 1/4	1810.0	1.75	LOT
OPEN HOLE		2131.0	8 1/2	2131.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
752	1.30			Water	
1633	1.35			Water	
1810	1.37			Water	
1814	1.20			Water	



1965	1.20			Water	
2010	1.18			Water	
2082	1.20			Water	
2103	1.25			Water	
2128	1.20			Water	
2131	1.25			Water	

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]
6374 Formation pressure (Formasjonstrykk)	pdf	0.20

