



Generell informasjon

Brønnbane navn	16/2-13 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	16/2-13
Seismisk lokalisering	LN0902R10:inline4479 & crossline 3814
Utvinningstillatelse	501
Boreoperatør	Lundin Norway AS
Boretillatelse	1404-L
Boreinnretning	TRANSOCEAN ARCTIC
Boredager	36
Borestart	24.07.2012
Boreslutt	30.08.2012
Frigitt dato	30.08.2014
Publiseringsdato	09.12.2014
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
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	HUGIN FM
Avstand, boredekk - midlere havflate [m]	24.0
Vanndybde ved midlere havflate [m]	116.0
Totalt målt dybde (MD) [m RKB]	2090.0
Totalt vertikalt dybde (TVD) [m RKB]	2086.0
Maks inklinasjon [°]	13.5
Eldste penetrerte alder	PRE-PERMIAN
Eldste penetrerte formasjon	NO GROUP DEFINED



Geodetisk datum	ED50
NS grader	58° 49' 58.48" N
ØV grader	2° 39' 10.34" E
NS UTM [m]	6521648.76
ØV UTM [m]	479959.23
UTM sone	31
NPDID for brønnbanen	6888

Brønnhistorie

General

Well 16/2-13 S was drilled on the Johan Sverdrup discovery on the Utsira High in the North Sea, 6.7 km northeast of well 16/2-8 and 2.4 km north-east of well 16/2-6. The main objectives were to confirm an oil saturated Upper Jurassic Draupne sand thickness of approximately 30 meter in the northeastern part of Johan Sverdrup; to establish the Johan Sverdrup pressure system and oil-water-contact in this area; and to improve the understanding of Draupne sand facies changes and lateral Draupne shale thickness variations.

Operations and results

The 16/2-13 (later renamed as 16/2-U-13) well was drilled according to the well design with the semi-submersible installation Transocean Arctic. A 9 7/8" pilot hole was drilled from the seabed and encountered shallow gas at 382 m. The hole was then plugged back with gas tight cement and the rig was moved 45 m SW. The appraisal well 16/2-13 S was then re-spudded on 24 July 2012 and a new 9 7/8" pilot hole was drilled to 725 m without seeing shallow gas. Drilling continued with 36", 26", 12 1/4" and 8 1/2" hole sections and reached TD at 2090 m (2085.7 m TVD) in Pre-Permian fractured granite and quartzite rock. Seawater and high viscosity pill was used as drilling fluid on the riserless sections down to 725 m, while Performadril water based mud was used from 725 m To TD.

The Draupne Formation shale was encountered at 1914.5 m (1910.2 m TVD) and was 10 m thick. Intra Draupne Formation sandstone was drilled from 1924.4 m to 1939.9 m (1920.1 m to 1935.6 m TVD). A 25 m oil column was confirmed in these sandstones and down through sandstones in the underlying Heather Formation (1 m thick) and Hugin Formation (8 m thick) to top Skagerrak Formation at 1949.3 m (1945 m TVD). The reservoir was oil filled to the base with an oil-down-to contact at top Skagerrak Formation. The upper Intra Draupne Formation sandstone had very good reservoir properties. No shows were recorded above top Jurassic or below the oil-bearing reservoir.

Two cores were cut across the reservoir from 1918 m in Draupne Formation shale to 1971.8 m in the Rotliegend Group. The core to log depth shift is -1.6 m for both cores. The core recovery was 100%. RCX oil samples were collected at, 1925.0 m, 1940.7 m and 1948.7 m.

The well was permanently abandoned on 30 August as an oil appraisal well.

Testing

No drill stem test was performed.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
730.00	2090.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1918.0	1944.4	[m]
2	1944.4	1971.8	[m]

Total kjerneprøve lengde [m]	53.8
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		1940.67	0.00	OIL	21.08.2012 - 00:00	NO
DST		1925.00	0.00	OIL	21.08.2012 - 00:00	NO
DST		0.00	1948.67	OIL	21.08.2012 - 00:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
140	NORDLAND GP
838	UTSIRA FM
934	HORDALAND GP
934	SKADE FM
1082	NO FORMAL NAME
1383	NO FORMAL NAME
1418	ROGALAND GP



1418	BALDER FM
1443	SELE FM
1460	LISTA FM
1549	VÅLE FM
1570	SHETLAND GP
1570	EKOFISK FM
1584	TOR FM
1647	HOD FM
1730	BLODØKS FM
1761	SVARTE FM
1799	CROMER KNOLL GP
1799	RØDBY FM
1870	SOLA FM
1886	ÅSGARD FM
1915	VIKING GP
1915	DRAUPNE FM
1925	INTRA DRAUPNE FM SS
1940	HEATHER FM
1941	VESTLAND GP
1941	HUGIN FM
1949	HEGRE GP
1949	SKAGERRAK FM
1955	ROTLIEGEND GP
2035	UNDEFINED GP

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
GR GEOWAVES VSP	0	0
MRCH JAR GR MAXCOR	2065	2081
MRCH JAR GR PCOR	1868	2059
MRCH JAR TTRM DSL CN ZDL RTEX ML	1833	2084
MRCH JAR TTRM DSL FLEX MREX	1860	2085
MRCH JAR TTRM DSL XMAC ORIT STAR	1420	2084
MRCH JAR TTRM ROTC IFX RLVP RCX	1902	1946
MWD LWD - DIR PWD GR RES SON	140	723



MWD LWD - PWD GR RES DEN NEU SON	682	2086
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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	
SURF.COND.	20	717.0	26	725.0	1.74	LOT
PILOT HOLE		725.0	9 7/8	725.0	0.00	
OPEN HOLE		730.0	17 1/2	730.0	0.00	
INTERM.	9 5/8	1854.0	12 1/2	1860.0	1.80	LOT
OPEN HOLE		2090.0	8 1/2	2090.0	0.00	

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
730	1.32	26.0		Water Base	
750	1.35	28.0		Water Base	
1010	1.40	31.0		Water Base	
1860	1.40	42.0		Water Base	
1918	1.40	30.0		Water Base	
2090	1.20	30.0		Water Base	

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]
6888 Formation pressure (Formasjonstrykk)	pdf	0.22

