



Generell informasjon

Brønnbane navn	16/1-16
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	IVAR AASEN
Funn	16/1-9 Ivar Aasen
Brønn navn	16/1-16
Seismisk lokalisering	LN902-R10.inline1365 & xline6012
Utvinningstillatelse	457
Boreoperatør	Wintershall Norge ASA
Boretillatelse	1391-L
Boreinnretning	BREDFORD DOLPHIN
Boredager	46
Borestart	23.10.2012
Boreslutt	07.12.2012
Frigitt dato	07.12.2014
Publiseringsdato	11.03.2015
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	HUGIN FM
2. nivå med hydrokarboner, alder	TRIASSIC
2. nivå med hydrokarboner, formasjon	SKAGERRAK FM
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	113.0
Totalt målt dybde (MD) [m RKB]	2722.0
Totalt vertikalt dybde (TVD) [m RKB]	2721.0
Maks inklinasjon [°]	2.6
Eldste penetrerte alder	PERMIAN
Eldste penetrerte formasjon	ROTLIEGEND GP



Geodetisk datum	ED50
NS grader	58° 54' 47.78" N
ØV grader	2° 15' 54.62" E
NS UTM [m]	6530777.71
ØV UTM [m]	457674.77
UTM sone	31
NPDID for brønnbanen	6823

Brønnhistorie

**General**

Well 16/1-16 was drilled on the east side of the Gudrun Terrace towards the Utsira High in the North Sea. The main objectives were to test the hydrocarbon potential in Late Jurassic/Early Cretaceous sands (the Noor prospect), and to appraise the extension of the Ivar Aasen Field of Middle Jurassic/Triassic age into PL457 area (Asha prospect). A possible secondary target at Paleocene level is the Heimdal sand pinchout. The well was planned to drill into Zechstein carbonates that may act as reservoir in this area.

Operations and results

Well 16/1-16 was spudded with the semi-submersible installation Bredford Dolphin on 23 October 2012 and drilled to TD at 2722 m in the Permian Rotliegend Group. A 9 7/8" pilot hole was first drilled to 600 m to check for shallow gas. No shallow gas was observed. Operations proceeded without significant problems. The well was drilled with

No significant problem was encountered in the operations. The well was drilled with seawater and hi-vis sweeps down to 592 m and with water based Performadril mud from 592 m to TD.

The interpreted Heimdal Formation sand reservoir was absent. The Lista Formation consists predominantly of Claystone with Limestone stringers.

In the first main exploration target (Noor prospect), the well penetrated approximately 90 m gross sandstones altogether, but there were no hydrocarbon shows or anomalous gas values seen. The Early Cretaceous Åsgard Formation is a Limestone/Chalk - sandstone sequence, with a predominantly limestone/chalk in the top 50 m and sandstone from 2120 m and towards the base. The Draupne Formation was found as a primarily siltstone sequence with abundant thin sandstones and limestone streaks throughout.

In the other main target (Asha prospect), the 16/1-16 well encountered a gross oil column of around 70 m in excellent reservoirs within the Middle Jurassic Hugin Formation, and into the Triassic Skagerrak Formation. Two hydrocarbon zones were found in separate pressure regime (0.6 bars difference). The first oil zone has an ODT at ca. 2435 m in the Hugin Formation. The deeper oil zone has an ODT at ca. 2454.2 m in the Skagerrak Formation. No oil/water contact was encountered. The oil found in 16/1-16 is of different type (heavier) than the oil previously proven in the Ivar Aasen field to the West. Moreover, unlike in Ivar Aasen, no gas cap is present in the Asha Discovery.

The 29 m thick Zechstein Group was found water wet. It is composed of dolomites and limestone and has relatively poor reservoir properties

Three consecutive cores were cut from 2385 m in the Hugin Formation to 2441 m in the Skagerrak Formation. MDT fluid samples were taken at 2163.28 m (water), 2385.2 m (oil), 2399.9 m (oil), 2424 m (oil), 2452.7 m (oil), 2458 m (water), and 2498.2 m (water).

The well was plugged back and completed for sidetracking on 7 December 2012.

Testing

No drill stem test was performed.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
600.00	2722.00



Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	2385.0	2411.9	[m]
2	2412.8	2428.5	[m]
3	2428.5	2441.6	[m]

Total kjerneprøve lengde [m]	55.7
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
MDT		0.00	0.00	OIL		NO
MDT		0.00	0.00	OIL		NO

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
138	NORDLAND GP
791	UTSIRA FM
874	HORDALAND GP
950	SKADE FM
1221	NO FORMAL NAME
1633	GRID FM
1731	NO FORMAL NAME
1893	ROGALAND GP
1893	BALDER FM
1919	SELE FM
1931	LISTA FM
2035	SHETLAND GP
2035	TOR FM



2071	CROMER KNOLL GP
2071	ÅSGARD FM
2176	VIKING GP
2176	DRAUPNE FM
2357	HEATHER FM
2382	VESTLAND GP
2382	HUGIN FM
2429	HEGRE GP
2429	SKAGERRAK FM
2642	ZECHSTEIN GP
2671	ROTLIEGEND GP

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
BNS ILEF AH184 HRLT TLD HNGS EDT	2010	2604
FMI PPC MSIP PPC EDTC LEHQT	2010	2602
MSCT GR LEHQT	2085	2121
MWD - DI	138	592
MWD - GR RES DEN NEU SON DI	2610	2722
MWD - GR RES DI	592	1304
MWD - GR RES PWD DI	138	600
SC PO PQ HY PO IFA MS1-2-3 PC GR	2163	2385
VSI4 GR LEHQT	1219	2593
XPT CMR GR LEHQT	2081	2502

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	216.0	36	218.0	0.00	
SURF.COND.	20	586.0	26	592.0	0.00	
PILOT HOLE		586.0	9 7/8	586.0	0.00	
INTERM.	13 3/8	1296.0	17 1/2	1304.0	0.00	
INTERM.	9 5/8	2036.0	12 1/4	2043.0	0.00	
OPEN HOLE		2722.0	8 1/2	2722.0	0.00	



Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
149	1.02			Spud Mud	
1247	1.19	16.0		KCL/Polymer/GEM	
1990	1.29	36.0		Performadrill	
2043	1.31	38.0		Performadrill	
2043	1.29	37.0		Performadrill	
2335	1.14	25.0		Performadrill	
2610	1.14	29.0		Performadrill	
2722	1.14	30.0		Performadrill	

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]
6823 Formation pressure (Formasjonstrykk)	pdf	0.23

