



Generell informasjon

Brønnbane navn	15/12-23
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Funn	15/12-21 (Grevling)
Brønn navn	15/12-23
Seismisk lokalisering	inline 3341 & xline 5243
Utvinningstillatelse	038 D
Boreoperatør	Talisman Energy Norge AS
Boretillatelse	1296-L
Boreinnretning	TRANSOCEAN WINNER
Boredager	59
Borestart	01.04.2010
Boreslutt	29.05.2010
Frigitt dato	29.05.2012
Publiseringsdato	29.05.2012
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	SLEIPNER FM
2. nivå med hydrokarboner, alder	LATE TRIASSIC
2. nivå med hydrokarboner, formasjon	SKAGERRAK FM
Avstand, boredekk - midlere havflate [m]	26.0
Vanndybde ved midlere havflate [m]	86.5
Totalt målt dybde (MD) [m RKB]	3485.0
Totalt vertikalt dybde (TVD) [m RKB]	3478.0
Maks inklinasjon [°]	9.9
Temperatur ved bunn av brønnbanen [°C]	128
Eldste penetrerte alder	LATE TRIASSIC



Eldste penetrerte formasjon	SKAGERRAK FM
Geodetisk datum	ED50
NS grader	58° 13' 0.78" N
ØV grader	1° 53' 3.87" E
NS UTM [m]	6453546.42
ØV UTM [m]	434456.03
UTM sone	31
NPDID for brønnbanen	6327

Brønnhistorie

**General**

Well 15/12-23 was drilled to appraise the Grevling Discovery in the Southern Viking Graben in the North Sea. The objective was to seek a deeper oil reservoir, or an oil water contact, within the Sleipner Formation, while addressing reservoir distribution and quality along with oil type and to prove up additional reserves in the Grevling discovery in the Hugin, Sleipner and Skagerrak formations sandstones.

Operations and results

Appraisal well 15/12-23 was spudded with the semi-submersible installation Transocean Winner on 1 April 2010 and drilled to TD at 3485 m in the Late Triassic Skagerrak Formation. No significant problem was encountered in the operations. The well was drilled with Hi-Vis Bentonite Sweeps down to 176 m, with KCl/GEM mud from 176 m to 1200 m, and with ENVIROMUL oil based mud from 1200 m to TD.

The prognosed top reservoir Hugin Formation was absent. Instead a silty Intra Heather Formation Sandstone was found directly on the Sleipner Formation. The Sleipner Formation came in at 3164 m and proved to be the main reservoir with coals and massive sandstones interbedded with siltstone. The top of the Sleipner was picked on the log response of coals present at the top of the Formation, and coals seen in the samples. Top reservoir sandstones came in at 3179 m only 1 m deep to prognosis. The reservoir comprises the Sleipner and Skagerrak Formations at this well location. The Skagerrak Formation came in at 3192 m 56 m shallower than the prognosis. Top Skagerrak was picked 54 m shallower from core biostratigraphy than from seismic and petrophysical logs. An OWC, possibly ODT, was picked at 3251 m in the Skagerrak Formation. Shows were observed on cuttings in the Sleipner sandstones and varied from no show to very good show in clean sands before pulling out to cut core at 3187 m. Shows from top cored interval in the Sleipner Formation at 3187 m continued into the Skagerrak Formation and down to 3230m.

Two cores were cut, core 1 from 3187 m to 3241.5 m and core 2 from 3241.5 m to 3296 m, giving a total of 109 m of core. Cores must be depth shifted down 4.6 meter to match the logs. The MDT was run and 18 good pressure points were obtained. Fluid samples were taken at 3191 (oil), 3232 m (oil), 3264 (water), 3285 (water), and 3336 (water).

The well was permanently abandoned on 29 May 2012 as an oil appraisal.

Testing

One drill stem test was performed from the interval 3181.5 - 3233 m in the Sleipner and Skagerrak Formations. The test produced at maximum 103 Sm³ oil/day through a 16/64" choke in the main flow. The gas measuring equipment did not work properly. In the succeeding sampling flow the well produced 84 Sm³ oil and 4159 Sm³ gas/day through a 12/64" choke. The GOR was 50 Sm³/Sm³.

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Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1200.00	3485.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3187.0	3241.5	[m]
2	3241.5	3295.8	[m]

Total kjerneprøve lengde [m]	108.8
Kjerner tilgjengelig for prøvetaking?	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
113	NORDLAND GP
916	UTSIRA FM
1111	NO FORMAL NAME
1116	HORDALAND GP
1212	GRID FM
1283	NO FORMAL NAME
2344	ROGALAND GP
2344	BALDER FM
2365	SELE FM
2436	LISTA FM
2526	VÅLE FM
2532	SHETLAND GP
2532	EKOFISK FM
2543	TOR FM
2731	HOD FM
2813	BLODØKS FM
2846	HIDRA FM
2907	CROMER KNOLL GP
2907	RØDBY FM
2921	SOLA FM
2924	TUXEN FM
2952	ÅSGARD FM
2966	VIKING GP
2966	DRAUPNE FM
3013	HEATHER FM
3117	INTRA HEATHER FM SS



3164	VESTLAND GP
3164	SLEIPNER FM
3192	NO GROUP DEFINED
3192	SKAGERRAK FM

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3181	3233	6.3

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

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0	84	4159			50

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
MDT ECTS ECRD	3185	3397
MRS SGT ACTS ECRD	3150	3485
MWD - GR DIR	112	176
MWD - GR RES DEN POR PWD DIR SON	3008	3485
MWD - GR RES PWD DIR	176	1184
MWD - GR RES SON DEN POR PWD DIR	1184	3008
OBMI PPC MSIP PPC ACTS ECRD SGT	1900	3485
RTS TLD APS HNGS ECS ACTS ERCD	2950	3485

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	173.0	36	173.0	0.00	LOT
SURF.COND.	13 3/8	1178.0	17 1/2	1184.0	1.70	LOT
INTERM.	9 5/8	2998.0	12 1/4	3008.0	1.95	LOT
OPEN HOLE		3485.0	8 1/2	3485.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
1141	1.47	37.0		Enviromul	
1141	1.47	37.0		Enviromul	
1230	1.47	37.0		Enviromul	
2800	1.47	39.0		Enviromul	
3008	1.47	42.0		Enviromul	
3060	1.47	39.0		Enviromul	
3186	1.48	37.0		Enviromul	
3241	1.47	37.0		Enviromul	
3485	1.48	40.0		Enviromul	