



Generell informasjon

Brønnbane navn	15/6-9 S
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	GINA KROG
Funn	15/5-1 Gina Krog
Brønn navn	15/6-9
Seismisk lokalisering	ST04M01 & inline 2886 & crossline 5000
Utvinningstillatelse	303
Boreoperatør	Statoil ASA (old)
Boretillatelse	1135-L
Boreinnretning	WEST EPSILON
Boredager	60
Borestart	29.03.2007
Boreslutt	27.05.2007
Frigitt dato	27.05.2009
Publiseringsdato	27.05.2009
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL/GAS
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIOCENE
1. nivå med hydrokarboner, formasjon.	UTSIRA FM
2. nivå med hydrokarboner, alder	MIDDLE JURASSIC
2. nivå med hydrokarboner, formasjon	HUGIN FM
Avstand, boredekk - midlere havflate [m]	48.0
Vanndybde ved midlere havflate [m]	113.0
Totalt målt dybde (MD) [m RKB]	3940.0
Totalt vertikalt dybde (TVD) [m RKB]	3910.0
Maks inklinasjon [°]	14.1
Temperatur ved bunn av brønnbanen [°C]	125



Eldste penetrerte alder	LATE TRIASSIC
Eldste penetrerte formasjon	SKAGERRAK FM
Geodetisk datum	ED50
NS grader	58° 35' 13.71" N
ØV grader	1° 44' 34.87" E
NS UTM [m]	6494914.51
ØV UTM [m]	426920.01
UTM sone	31
NPDID for brønnbanen	5494

Brønnhistorie

**General**

Well 15/6-9 S was drilled on the Ermintrude prospect east of the Dagny discovery and north of the Sleipner Vest field. The prospect is located in the South Viking Graben on the northernmost extension of the Sleipner Terrace, with the Utsira High immediately to the east. The primary objective was to prove hydrocarbons in the Hugin Formation and to acquire data to understand the reservoir characteristics and fluid distribution, and how the Ermintrude structure is connected to the Dagny discovery. Potential targets in the Sleipner and Skagerrak Formation were also investigated by this drilling.

Operations and results

Well 15/6-9 S was spudded with the jack-up installation West Epsilon on 29 March 2007 and drilled to TD at 3940 m in the Late Triassic Skagerrak Formation. The well was drilled vertical down to 1050 m and continued in a slightly deviated S-shaped trajectory towards TD. The well was drilled with seawater and hi-vis sweeps down to 277 m, with seawater and CMC EHV sweeps from 277 to 762 m, with a KCl/glycol/polymer mud from 762 to 2797 m, and with low-sulphate KCl/glycol/polymer mud from 2797 m to TD. No shallow gas was observed while drilling the 36" hole, 12 1/4" pilot hole or in the 24" hole opening run. However, 6.3% gas (98% Methane) was observed at top Utsira Formation, 39 m below the 20" casing shoe. MDT pressures and sampling confirmed a normally pressured gas accumulation.

The well penetrated rocks of Quaternary, Tertiary, Cretaceous, Jurassic, and Triassic age. The well penetrated the Hugin reservoir at 3741 m, slightly shallower than prognosed. Pressure points and fluid samples were taken with the MDT and a hydrocarbon discovery was proven in the Hugin Formation. The MDT results and wire line logs proved this to be light oil in an oil-down-to situation at ca 3790 m (3714 m TVD MSL). There were no shows or other hydrocarbon indications below 3790 m.

One conventional core was cut at 3761.3 - 3811 m in the Hugin Formation. Shows on the core verified the oil-down-to contact at 3793 m. A total of 26 sidewall cores were drilled with the MSCT in Draupne, Heather, Hugin, Sleipner and Skagerrak Formation. High quality oil samples were acquired in the Hugin Formation at 3763 m and 3791 m. A water sample was taken at 3804 m in the Sleipner Formation. The quality of the water sample was low with 40% mud contamination measured at the rig site. In the Utsira Formation, gas samples were taken by dual packer MDT at 793 m.

Well 15/6-9 S was plugged back to 2838 m in the 8 1/2" section on 26 May 2007. The well is classified as a gas and oil appraisal well. The geologic sidetrack 15/6-9 A was kicked off on the same day to prove communication with the Dagny discovery and to appraise gas above the oil-leg in the Hugin Formation.

Testing

No drill stem test was performed.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
280.00	3940.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3761.3	3810.7	[m]

Total kjerneprøve lengde [m]	49.4
Kjerner tilgjengelig for prøvetaking?	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
161	NORDLAND GP
792	UTSIRA FM
1025	HORDALAND GP
1169	SKADE FM
1189	NO FORMAL NAME
1857	GRID FM
2020	NO FORMAL NAME
2226	ROGALAND GP
2226	BALDER FM
2268	SELE FM
2321	LISTA FM
2352	HEIMDAL FM
2735	VÅLE FM
2798	SHETLAND GP
2798	EKOFISK FM
2850	TOR FM
3123	HOD FM
3367	CROMER KNOLL GP
3367	RØDBY FM
3511	VIKING GP
3511	DRAUPNE FM
3616	HEATHER FM
3741	VESTLAND GP
3741	HUGIN FM
3794	SLEIPNER FM
3872	NO GROUP DEFINED
3872	SKAGERRAK FM



Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
MDT	3758	3851
MDT	3761	3791
MDT	3763	3804
MSCT	2899	3940
MWD - ARC VISION	768	2797
MWD - DIR	161	2775
MWD - GEO VISION SEISMIC	2797	3940
PEX HRLA DSI ACTS ECRD	2786	3940
VSP VSI-4	800	3940

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	268.0	36	275.0	0.00	LOT
SURF.COND.	20	753.0	24	768.0	1.59	LOT
INTERM.	13 3/8	2786.0	17 1/2	2797.0	1.60	LOT
OPEN HOLE		3940.0	8 1/2	3940.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	flytegrense [Pa]	Type slam	Dato, måling
320	1.05			SPUD MUD	
610	1.09			SPUD MUD	
768	1.12	4.0		KILL FLUID-SW/BENTONITE	
771	1.12	5.0		KILL FLUID-SW/BENTONITE	
1158	1.35	17.0		KCL/POLYMER/GLY COL	
1725	1.35	18.0		KCL/POLYMER/GLY COL	
2744	1.35	21.0		KCL/POLYMER/GLY COL	



2797	1.35	22.0		KCL/POLYMER/GLY COL	
2883	1.46	13.0		KCL/POLYMER/GLY COL	
3139	1.46	31.0		KCL/POLYMER/GLY COL	
3489	1.46	30.0		KCL/POLYMER/GLY COL	
3761	1.46	27.0		KCL/POLYMER/GLY COL	
3763	1.46	35.0		KCL/POLYMER/GLY COL	
3811	1.46	33.0		KCL/POLYMER/GLY COL	
3940	1.46	32.0		KCL/POLYMER/GLY COL	

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]
5494_Formation_pressure_(Formasjonstrykk)	PDF	0.22

