

**General information**

Wellbore name	15/6-11 A
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Field	GINA KROG
Discovery	15/5-1 Gina Krog
Well name	15/6-11
Seismic location	3D LINE st0730z09 INLINE 1460 & TRACE 1480
Production licence	303
Drilling operator	Statoil Petroleum AS
Drill permit	1336-L
Drilling facility	OCEAN VANGUARD
Drilling days	78
Entered date	26.12.2010
Completed date	13.03.2011
Release date	13.03.2013
Publication date	13.03.2013
Purpose - planned	APPRAISAL
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	NO
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	HUGIN FM
Kelly bushing elevation [m]	22.0
Water depth [m]	116.0
Total depth (MD) [m RKB]	4305.0
Final vertical depth (TVD) [m RKB]	3853.0
Maximum inclination [°]	42
Bottom hole temperature [°C]	121
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	STATFJORD GP
Geodetic datum	ED50
NS degrees	58° 34' 8.62" N
EW degrees	1° 42' 10.61" E



NS UTM [m]	6492945.84
EW UTM [m]	424551.53
UTM zone	31
NPDID wellbore	6526

Wellbore history

General

Well 15/6-11 A was drilled to appraise the 15/5-1 Dagny Discovery in the South-eastern end of the Viking Graben. The north-eastern extension of this structure, the Ermintrude Segment, was tested in 2007 by well 15/6-9 S and side tracks 15/6-9 A&B, which proved oil and gas in a down-to situation in the Hugin Formation, and in communication with the Dagny Discovery. Well 15/6-11-A was drilled on the western part of the Ermintrude structure, on the saddle point between the main Dagny segment and the Ermintrude Segment. The main objective was thus to delimit and test the extension of the hydrocarbon-bearing sands in Hugin Formation of the Dagny Discovery. If hydrocarbons were confirmed a drill stem test would be conducted.

Operations and results

Appraisal well 15/6-11 A was sidetracked from the primary well 15/6-11 S on 26 December 2010. Kick-off point was 1981 m. The well was drilled with the semi-submersible installation Ocean Vanguard to TD at 4305 m (3853 m TVD) in the Early Jurassic Statfjord Formation. No significant problems were encountered in the operations. The sidetrack well was drilled with XP-07 14A oil based mud from kick-off to TD.

The target reservoir sandstones of the Hugin Formation were encountered at 4121 m (3708.5 m TVD), 12.5 m deeper than prognosis. The Hugin Formation was found to be heterolithic siltstone/sandstone at the top but grading to better sand quality with depth. Good sandstones with high gas values and hydrocarbon shows were encountered 4138 m. Both the core and the logs showed presence of hydrocarbons in the Hugin Formation with OWC at 4167 m (3745 m TVD). There were shows indications also in sands in the Sleipner Formation and in the Statfjord Formation towards TD of the well.

A core was cut from 4148 m to 4179 m. The core shift relative to the logs was found to be close to + 2.3 m for the whole core. MDT wire line fluid samples were taken at 4148 m (oil and gas), and at 2597.7 m (water).

The well was permanently abandoned on 13 March 2011 as a gas/condensate appraisal well.

Testing

A drill stem test was conducted from perforations at 4137.8 m to 4158.5 m in the gas/condensate bearing zone of the Hugin Formation. The test produced 120 Sm³ oil and 220000 Sm³ gas /day through a 32/64" choke. The GOR was 1830 Sm³/Sm³. The bottom hole temperature at reference depth was 118 deg C.

Cuttings at the Norwegian Offshore Directorate



Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1990.00	4305.20

Cuttings available for sampling?	YES
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Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	4148.0	4181.0	[m]

Total core sample length [m]	33.0
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
3965.0	[m]	DC	
3970.0	[m]	DC	
3975.0	[m]	DC	
3980.0	[m]	DC	
3985.0	[m]	DC	
3990.0	[m]	DC	
3995.0	[m]	DC	
4000.0	[m]	DC	
4006.0	[m]	DC	
4012.0	[m]	DC	
4018.0	[m]	DC	
4024.0	[m]	DC	
4030.0	[m]	DC	
4036.0	[m]	DC	
4042.0	[m]	DC	
4048.0	[m]	DC	
4054.0	[m]	DC	
4060.0	[m]	DC	
4066.0	[m]	DC	
4072.0	[m]	DC	
4078.0	[m]	DC	
4084.0	[m]	DC	



4090.0 [m]	DC	
4096.0 [m]	DC	
4102.0 [m]	DC	
4105.0 [m]	DC	
4108.0 [m]	DC	
4114.0 [m]	DC	
4117.0 [m]	DC	
4120.0 [m]	DC	
4123.0 [m]	DC	
4126.0 [m]	DC	
4129.0 [m]	DC	
4132.0 [m]	DC	
4135.0 [m]	DC	
4138.0 [m]	DC	
4141.0 [m]	DC	
4144.0 [m]	DC	
4147.0 [m]	DC	
4148.0 [m]	C	
4150.0 [m]	DC	
4151.7 [m]	C	
4153.0 [m]	DC	
4156.0 [m]	DC	
4156.2 [m]	C	
4159.0 [m]	DC	
4159.5 [m]	C	
4162.0 [m]	DC	
4163.1 [m]	C	
4163.9 [m]	C	
4165.0 [m]	DC	
4165.6 [m]	C	
4168.0 [m]	DC	
4171.0 [m]	DC	
4171.7 [m]	C	
4174.0 [m]	DC	
4174.6 [m]	C	
4177.0 [m]	DC	
4178.0 [m]	C	
4179.1 [m]	C	
4180.0 [m]	DC	
4183.0 [m]	DC	



4186.0 [m]	DC	
4189.0 [m]	DC	
4192.0 [m]	DC	
4195.0 [m]	DC	
4198.0 [m]	DC	
4207.0 [m]	DC	
4213.0 [m]	DC	
4219.0 [m]	DC	
4225.0 [m]	DC	
4231.0 [m]	DC	
4237.0 [m]	DC	
4243.0 [m]	DC	
4249.0 [m]	DC	
4255.0 [m]	DC	
4261.0 [m]	DC	
4267.0 [m]	DC	
4273.0 [m]	DC	
4279.0 [m]	DC	
4285.0 [m]	DC	
4291.0 [m]	DC	
4297.0 [m]	DC	
4303.0 [m]	DC	
4305.2 [m]	C	

Oil samples at the Norwegian Offshore Directorate

Test type	Bottle number	Top depth MD [m]	Bottom depth MD [m]	Fluid type	Test time	Samples available
DST		4158.00	4139.58	OIL	25.02.2011 - 19:40	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
137	NORDLAND GP
786	UTSIRA FM
996	HORDALAND GP
1328	SKADE FM



1748	GRID FM
2109	ROGALAND GP
2109	BALDER FM
2167	SELE FM
2217	LISTA FM
2245	HEIMDAL FM
2757	VÅLE FM
2850	SHETLAND GP
2850	EKOFISK FM
2895	TOR FM
3284	HOD FM
3715	BLODØKS FM
3718	HIDRA FM
3802	CROMER KNOLL GP
3802	RØDBY FM
3914	SOLA FM
3935	ÅSGARD FM
3967	VIKING GP
3967	DRAUPNE FM
4009	HEATHER FM
4121	VESTLAND GP
4121	HUGIN FM
4201	SLEIPNER FM
4286	DUNLIN GP
4286	COOK FM
4291	STATEJORD GP

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	4148	4180	12.7

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0			22.000	118



Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	120	220000			

Logs

Log type	Log top depth [m]	Log bottom depth [m]
MWD LWD - ARCRES8 TELE	4010	4148
MWD LWD - ARCVRES8 TELE	1989	4003
MWD LWD - GVR ARC6 TELE	4010	4305

Casing and leak-off tests

Casing type	Casing diam. [inch]	Casing depth [m]	Hole diam. [inch]	Hole depth [m]	LOT/FIT mud eqv. [g/cm3]	Formation test type
LINER	9 5/8	4002.0	12 1/4	4006.0	2.13	LOT
LINER	7	4304.0	8 1/2	4305.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
420	1.39	28.0		Spud Mud	
1950	1.49	13.0		XP-07 - #14	
2244	1.39	28.0		XP-07 - #14	
2631	1.40	23.0		XP-07 - #14	
2902	1.39	25.0		XP-07 - #14	
3042	1.40	28.0		XP-07 - #14	
3117	1.40	24.0		XP-07 - #14	
3390	1.42	27.0		XP-07 - #14	
3430	1.43	23.0		XP-07 - #14	
3477	1.45	24.0		XP-07 - #14	
3549	1.48	26.0		XP-07 - #14	
4003	1.50	29.0		XP-07 - #14	
4003	1.50	25.0		XP-07 - #14	
4028	1.50	28.0		XP-07 - #14	
4076	1.50	30.0		XP-07 - #14	
4174	1.50	34.0		XP-07 - #14	



4180	1.51	31.0		XP-07 - #14	
4305	1.52	30.0		XP-07 - #14	
4305	1.50	27.0		XP-07 - #14	
4305	1.50	26.0		XP-07 - #14	
4305	1.52	31.0		XP-07 - #14	
4305	1.50	32.0		XP-07 - #14	

Pressure plots

The pore pressure data is sourced from well logs if no other source is specified. In some wells where pore pressure logs do not exist, information from Drill stem tests and kicks have been used. The data has been reported to the NPD, and further processed and quality controlled by IHS Markit.

Document name	Document format	Document size [MB]
6526 Formation pressure (Formasjonstrykk)	pdf	0.23

