

**General information**

Wellbore name	31/4-11
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Field	BRAGE
Discovery	31/4-11
Well name	31/4-11
Seismic location	NH9204 RANDOML.1855 CROSSL.891
Production licence	055
Drilling operator	Norsk Hydro Produksjon AS
Drill permit	981-L
Drilling facility	SCARABEO 6
Drilling days	48
Entered date	27.07.2000
Completed date	12.09.2000
Release date	12.09.2002
Publication date	04.10.2013
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL/GAS
Discovery wellbore	YES
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	VIKING GP
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	BRENT GP
3rd level with HC, age	MIDDLE JURASSIC
3rd level with HC, formation	STATFJORD GP
Kelly bushing elevation [m]	26.0
Water depth [m]	183.0
Total depth (MD) [m RKB]	3271.0
Final vertical depth (TVD) [m RKB]	2765.0
Maximum inclination [°]	58.7
Bottom hole temperature [°C]	108
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	STATFJORD GP



Geodetic datum	ED50
NS degrees	60° 36' 42.58" N
EW degrees	3° 6' 1.74" E
NS UTM [m]	6719714.87
EW UTM [m]	505501.19
UTM zone	31
NPDID wellbore	4147

Wellbore history

**General**

Well 31/4-11 was drilled on the Bowmore structure in the northern part of the Brage Field as a combined appraisal/exploration well. The Bowmore structure is situated about 6-8 km NNE of the Brage platform. It is a NE-SW trending wedge shaped horst, rising and tapering towards the SW. The primary objective was to prove hydrocarbons in the Middle - Late Jurassic Fensfjord Formation. The secondary objectives were to prove hydrocarbons in sandstones of the Late Jurassic Sognefjord and Draupne formations and in the Middle Jurassic Brent Group. During drilling of the well, it was decided to extend the well and explore the hydrocarbon potential in the Statfjord Formation.

Operations and results

Wildcat well 31/4-11 was spudded with the semi-submersible installation Scarabeo 6 on 27 July 2000 and drilled to TD at 3271 m (2765 m TVD) in the Early Jurassic Statfjord Group. This is a deviated well. It was drilled vertical down to 1410 m and deviated from there with up to 58.7 deg inclination. The well was drilled with sea water and hi-vis pills down to 283 m and with Glydril mud from 283 m to TD.

Top Draupne Formation was encountered at 2130 m. Intra Draupne sandstones interbedded with claystones, shale and siltstone were penetrated from 2149 m to top Sognefjord Formation at 2201 m. The Draupne Formation sandstones were gas saturated while only water was sampled in the underlying Sognefjord Formation. However, geochemical analyses of cores indicated an oil column from 2189 m to 2217 m.

The Fensfjord Formation was penetrated from 2351 m to 2426 m. Moveable oil was proven with an ODT at 2376 m.

The Brent Group was encountered with top Tarbert Formation at 2644 m. Tarbert and Ness formations contained oil down to a shale sequence at 2682 m in the Ness Formation. Excellent pressure points indicated an OWC at exactly 2696 m.

Top Statfjord Group was encountered at 3178 m. The Statfjord Group was water bearing with weak shows at the top.

No oil shows were described above top Jurassic level.

A total of 16 cores were cut from 2123 m to 2431 m in claystones, siltstones and sandstones of the Draupne, Sognefjord, Heather and Fensfjord formations. Core recovery varied from 6.3% to 100%. Wire line fluid samples were taken in the Draupne and Sognefjord formations at 2162 m (gas), 2182.5 m (gas), and 2205.8 m (water); in the Fensfjord Formation at 2357.5 m (oil) and 2372.3 m (oil); and in the Brent Group at 2678.5 m (oil), 2675.1 m (oil), 2699.2 m (water), and 2712.8 m (water)

The well was permanently abandoned on 12 September as an oil and gas discovery.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1110.00	3270.00

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	2123.0	2133.6	[m]
2	2134.0	2138.0	[m]
3	2144.0	2149.0	[m]
4	2149.0	2156.7	[m]
5	2157.0	2161.0	[m]
6	2179.0	2179.5	[m]
7	2187.0	2204.5	[m]
8	2204.5	2221.1	[m]
9	2222.0	2240.0	[m]
10	2316.0	2333.5	[m]
11	2343.0	2354.2	[m]
12	2361.0	2367.0	[m]
13	2370.0	2376.7	[m]
14	2376.7	2395.0	[m]
15	2395.0	2412.9	[m]
16	2413.0	2431.0	[m]

Total core sample length [m]	179.4
Cores available for sampling?	YES

Core photos



2123-2127m



2127-2131m



2131-2133m



2134-2138m



2134-2138m



2144-2148m



2148-2149m



2149-2153m



2153-2156m



2157-2161m



2179-2179m



2187-2191m



2191-2195m



2195-2199m



2199-2203m



2203-2204m



2204-2208m



2208-2212m



2212-2216m



2216-2220m



2220-2221m



2222-2226m



2226-2230m



2230-2234m



2234-2238m



2238-2240m



2316-2320m



2320-2334m



2324-2328m



2328-2332m



2332-2333m



2343-2347m



2347-2351m



2351-2354m



2361-2365m



2365-2367m



2370-2374m



2374-2376m



2376-2380m



2380-2304m



2384-2388m



2388-2392m



2392-2395m



2395-2399m



2403-2407m



2407-2411m



2411-2412m



2413-2417m



2417-2421m



2421-2425m



2425-2429m



2429-2431m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
2115.0	[m]	DC	PETROSTR
2117.0	[m]	DC	PETROS
2120.0	[m]	DC	PETROS
2122.0	[m]	DC	PETROS
2124.2	[m]	C	PETROS
2132.4	[m]	C	PETROS
2135.2	[m]	C	PETROS
2148.9	[m]	C	PETROS
2155.5	[m]	C	PETROS
2163.0	[m]	DC	PETROS
2167.0	[m]	DC	PETROS
2170.0	[m]	DC	PETROS
2172.0	[m]	DC	PETROS
2175.0	[m]	DC	PETROS
2177.0	[m]	DC	PETROS



2197.3 [m]	C	PETROS
2200.4 [m]	C	PETROS
2212.2 [m]	C	PETROS

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
209	NORDLAND GP
783	UTSIRA FM
802	HORDALAND GP
1725	ROGALAND GP
1725	BALDER FM
1777	SELE FM
1820	LISTA FM
1980	VÅLE FM
2019	SHETLAND GP
2019	NO FORMAL NAME
2098	CROMER KNOLL GP
2098	NO FORMAL NAME
2130	VIKING GP
2130	DRAUPNE FM
2201	SOGNEFJORD FM
2233	HEATHER FM
2351	FENSFJORD FM
2426	HEATHER FM
2522	KROSSFJORD FM
2538	HEATHER FM
2644	BRENT GP
2644	TARBERT FM
2654	NESS FM
2697	NO FORMAL NAME
2785	DUNLIN GP
2785	DRAKE FM
2957	COOK FM
2985	AMUNDSEN FM
3178	STATFJORD GP

Geochemical information





Document name	Document format	Document size [MB]
4147 1	pdf	0.28
4147 2	pdf	0.09
4147 3	pdf	9.45
4147 4	pdf	0.10

Documents - reported by the production licence (period for duty of secrecy expired)

Document name	Document format	Document size [MB]
4147 31 4 11 COMPLETION LOG	.pdf	9.06
4147 31 4 11 COMPLETION REPORT	.pdf	3.64

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CRFT	2157	2162
DSI VSP	2000	2835
HALS PEX	1110	2005
MDT	2178	2784
MDT	2182	2362
MDT	2182	2372
MDT	2357	2701
MWD - ARC VIS675 ADN	1950	2176
MWD - GST VIS675 ADN	2160	3258
MWD - PP CDR	209	2176

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
CONDUCTOR	30	283.0	36	283.0	0.00	LOT
SURF.COND.	13 3/8	1100.0	17 1/2	1100.0	1.68	LOT
INTERM.	9 5/8	2166.0	12 1/4	2176.0	1.55	LOT
OPEN HOLE		3271.0	8 1/2	3271.0	0.00	LOT

Drilling mud





Depth MD [m]	Mud weight [g/cm ³]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
1100	1.32	13.0		water based	
1600	1.50	18.0		water based	
2121	1.50	23.0		water based	
2139	1.50	21.0		water based	
2343	1.20	14.0		water based	
2370	1.21	14.0		water based	
2835	1.21	15.0		water based	
2835	1.20	15.0		water based	
3271	1.23	14.0		water based	

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]
4147 Formation pressure (Formasjonstrykk)	pdf	0.23

