

**General information**

Wellbore name	15/6-8 S
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	15/6-8
Seismic location	MC3D-Q15 LINE 1659 & CDP 4332
Production licence	166
Drilling operator	Deminex Norge AS
Drill permit	878-L
Drilling facility	BYFORD DOLPHIN
Drilling days	46
Entered date	18.02.1997
Completed date	05.04.1997
Release date	05.04.1999
Publication date	31.10.2003
Purpose - planned	WILDCAT
Reentry	NO
Content	DRY
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	102.0
Total depth (MD) [m RKB]	3225.0
Final vertical depth (TVD) [m RKB]	3147.0
Maximum inclination [°]	21.6
Bottom hole temperature [°C]	104
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SKAGERRAK FM
Geodetic datum	ED50
NS degrees	58° 32' 57.58" N
EW degrees	1° 52' 55.9" E
NS UTM [m]	6490561.26
EW UTM [m]	434940.96
UTM zone	31
NPDID wellbore	3014



Wellbore history

General

Block 15/6 is situated on the eastern flank of the southern part of the South Viking Graben, lying in a transition zone on a system of faulted terraces between the main Viking Graben to the west and the Utsira High to the east. The primary objective of the 15/6-8 S well was to test the hydrocarbon potential of the Middle Jurassic Hugin Formation within a seismically defined structural trap. A secondary objective was the Heimdal Formation sandstone ("C-Prospect") which was prognosed to be penetrated in a down dip flank location, but within structural spill.

The sidetrack 15/6-8 A was designed to test the "C-prospect" in a more optimal crestal location, some 1000 m to the west of the well position.

Other potential reservoir horizons existed in the Early Tertiary Skade and Grid Formations. These were not within mapped structural closure in any of the well trajectories. The well programmes were designed to maximise the evaluation of these sections.

Operations and results

Exploration well 15/6-8S was spudded with the semi-submersible installation "Byford Dolphin" on 18 February 1997 and drilled as a vertical hole to a depth of 1538 m, before kicking off in a NNW direction towards the Middle Jurassic primary objective. The final TD was reached at 3225 m MD (3122.5 m TVD SS) in the Triassic Skagerrak Formation. The well was drilled with Seawater and bentonite down to 512 m, with KCl / polymer mud from 512 to 1650 m, and with KCl / polymer / glycol from 1650 m to TD.

The Quaternary and Tertiary sequence of 2550 m thickness (2493 m True Vertical Thickness, TVT) was represented by the Nordland, Hordaland and Rogaland Groups. Mudstone lithologies dominated, but significant thick sandstone development was present in the Utsira, Skade, Grid, and Heimdal Formations.

The Shetland Group comprised the Early Palaeocene Ekofisk and the Late Cretaceous, Tor, Hod, Blodøks and Svarte Formations. This 408 m sequence (389 m TVT) was dominated by carbonate lithologies. There were no intervals of reservoir potential. The Early Cretaceous was primarily recognised from well site micropalaeontological analysis of ditch cuttings as a very thin but condensed lithological sequence (4.5 m). It is interpreted as the Åsgard Formation. The Draupne Formation was penetrated at 3089.5 m (2988.6 m TVD SS), and the Heather Formation at 3117.5 m (3016.2 m TVD SS). The primary objective Hugin Formation was penetrated at 3164.5 m, (3062.6 m TVD SS). It consisted of 9 m of sandstone with some minor claystone intercalations, passing into the Triassic Skagerrak Formation at 3173.5 m (3071.4 m TVD SS). Sandstone lithology continued to 3191 m, below which claystone with thin sandstone interbeds became the dominant lithology.

No hydrocarbon shows were recorded or noted within any of the potential reservoir sections in the well. FMT and petrophysical evaluation confirmed all zones to be water bearing with a complete absence of hydrocarbons.

A total of four log runs, were successfully completed at well TD, the first 2 on wire line, the second 2 were pipe conveyed. A 5th run (walk away VSP) was abandoned after 2 1/2 x 6 km lines due to loss of air pressure at the offset source. On rigging up the wire line logging tools the logging contractor Western Atlas was unable to detect marks on the cable and unable to determine the fault. The cable was changed out, but the second cable was again found to be faulty. As a result of the problems, depth matching between log runs had an error factor of at least +/-2m. The first log in the hole,



DLL/MLL/DAC/GR/CHT run 1/1, was therefore used as the reference log giving a consistent error for all further runs. Depth mismatching was further exacerbated by the need to run wire line pipe conveyed, and open hole sticking with accelerometer correction required in certain instances. No fluid sample was taken in the well. One core was cut in the Hugin and Skagerrak Formations in the interval 3172 m to 3181.5 m (8.85m recovered).

Well 15/6-8 S was permanently plugged back to the 9 5/8" casing shoe and abandoned as a dry well on 5 April 1997. Well 15/6-8 A was kicked off from below the 9 5/8" casing at 1525 m and drilled to TD at 2480 m (2397 m TVD SS) in the Heimdal Formation, below the mapped structural spill point. The sidetrack was drilled with KCl / Polymer / Glycol mud from kick-off to TD.

The Quaternary and Tertiary sequence of at least 2353 m thickness (2295 m TVT) was represented by the Nordland, Hordaland and Rogaland Groups. Mudstone lithologies dominated, but significant thick sandstone development was present in the Utsira, Skade, Grid and Heimdal Formations. No hydrocarbon shows were recorded within any of the potential reservoir horizons. The logging operations suffered similar problems as in the primary well bore leading to similar uncertainty in depth correlation of the logs. No fluid samples were taken. One conventional core was cut over the interval 2438 m to 2449 m (10.2m recovered) in the Heimdal Formation.

Well 15/6-8 A was permanently abandoned as a dry well on 18 April 1997.

Testing

No drill stem test was performed.

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	3172.0	3180.9	[m]

Total core sample length [m]	8.9
Cores available for sampling?	YES

Core photos



3172-3177m



3177-3180m

**Palynological slides at the Norwegian Offshore Directorate**

Sample depth	Depth unit	Sample type	Laboratory
1810.0	[m]	DC	RRI
1825.0	[m]	DC	RRI
1840.0	[m]	DC	RRI
1855.0	[m]	DC	RRI
1870.0	[m]	DC	RRI
1885.0	[m]	DC	RRI
1900.0	[m]	DC	RRI
1915.0	[m]	DC	RRI
1930.0	[m]	DC	RRI
1945.0	[m]	DC	RRI
1960.0	[m]	DC	RRI
1975.0	[m]	DC	RRI
1990.0	[m]	DC	RRI
2005.0	[m]	DC	RRI
2020.0	[m]	DC	RRI
2035.0	[m]	DC	RRI
2050.0	[m]	DC	RRI
2065.0	[m]	DC	RRI
2080.0	[m]	DC	RRI
2095.0	[m]	DC	RRI
2110.0	[m]	DC	RRI
2125.0	[m]	DC	RRI
2140.0	[m]	DC	RRI
2155.0	[m]	DC	RRI
2175.0	[m]	DC	RRI
2185.0	[m]	DC	RRI
2200.0	[m]	DC	RRI
2220.0	[m]	DC	RRI
2230.0	[m]	DC	RRI
2245.0	[m]	DC	RRI
2255.0	[m]	DC	RRI
2260.0	[m]	DC	RRI
2275.0	[m]	DC	RRI
2290.0	[m]	DC	RRI
2305.0	[m]	DC	RRI
2320.0	[m]	DC	RRI
2335.0	[m]	DC	RRI
2350.0	[m]	DC	RRI



2361.0	[m]	DC	RRI
2367.0	[m]	DC	RRI
2373.0	[m]	DC	RRI
2379.0	[m]	DC	RRI
2385.0	[m]	DC	RRI
2391.0	[m]	DC	RRI
2397.0	[m]	DC	RRI
2403.0	[m]	DC	RRI
2409.0	[m]	DC	RRI
2415.0	[m]	DC	RRI
2421.0	[m]	DC	RRI
2427.0	[m]	DC	RRI
2433.0	[m]	DC	RRI
2439.0	[m]	DC	RRI
2445.0	[m]	DC	RRI
2455.0	[m]	DC	RRI
2460.0	[m]	DC	RRI
2465.0	[m]	DC	RRI
2470.0	[m]	DC	RRI
2475.0	[m]	DC	RRI
2480.0	[m]	DC	RRI
2490.0	[m]	DC	RRI
2495.0	[m]	DC	RRI
2500.0	[m]	DC	RRI
2515.0	[m]	DC	RRI
2530.0	[m]	DC	RRI
2545.0	[m]	DC	RRI
2560.0	[m]	DC	RRI
2575.0	[m]	DC	RRI
2590.0	[m]	DC	RRI
2605.0	[m]	DC	RRI
2620.0	[m]	DC	RRI
2635.0	[m]	DC	RRI
2650.0	[m]	DC	RRI
2665.0	[m]	DC	RRI
2675.0	[m]	DC	RRI
3090.0	[m]	DC	RRI
3105.0	[m]	DC	RRI
3120.0	[m]	DC	RRI
3135.0	[m]	DC	RRI



3150.0	[m]	DC	RRI
3165.0	[m]	DC	RRI
3183.0	[m]	DC	RRI
3195.0	[m]	DC	RRI
3210.0	[m]	DC	RRI
3225.0	[m]	DC	RRI

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
127	NORDLAND GP
773	UTSIRA FM
1080	HORDALAND GP
1178	SKADE FM
1243	NO FORMAL NAME
1270	SKADE FM
1280	NO FORMAL NAME
1362	SKADE FM
1390	NO FORMAL NAME
1811	GRID FM
2037	NO FORMAL NAME
2259	ROGALAND GP
2259	BALDER FM
2322	SELE FM
2385	LISTA FM
2433	HEIMDAL FM
2650	VÅLE FM
2677	SHETLAND GP
2677	EKOFISK FM
2723	TOR FM
2838	HOD FM
3069	BLODØKS FM
3075	SVARTE FM
3085	CROMER KNOLL GP
3085	ÅSGARD FM
3090	VIKING GP
3090	DRAUPNE FM
3118	HEATHER FM
3165	VESTLAND GP



3165	HUGIN FM
3174	NO GROUP DEFINED
3174	SKAGERRAK FM

Composite logs

Document name	Document format	Document size [MB]
3014	pdf	0.52

Geochemical information

Document name	Document format	Document size [MB]
3014_1	pdf	1.96
3014_2	pdf	0.58

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

Document name	Document format	Document size [MB]
3014_15_6_8_S_COMPLETION_REPORT	pdf	67.08
3014_16_6_8_S_COMPLETION_LOG	pdf	1.96

Logs

Log type	Log top depth [m]	Log bottom depth [m]
HP FMT GR	2440	3169
MLL DLL DAC GR CHT	1490	3215
MWD - DIR GR	127	512
MWD LWD - DIR GR RES	512	1505
MWD LWD - DIR GR RES PWD	1505	3172
VSP	1190	1480
VSP	1811	3195
ZDL CN SL CHT	1490	3219

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	175.5	36	177.5	0.00	LOT
SURF.COND.	13 3/8	499.0	17 1/2	512.0	0.00	LOT
INTERM.	9 5/8	1492.0	12 1/4	1510.0	1.41	LOT
OPEN HOLE		3225.0	8 1/2	3225.0	1.65	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
148	1.03			SEAWATER	
178	1.20			BENTONITE	
512	1.04			SEAWATER	
801	1.27	73.0		KCL POLYMER	
1495	1.43	33.0		KCL/POLYMER	
1505	1.27	71.0		KCL POLYMER	
1650	1.45	37.0		KCL POLYMER	
1881	1.39	37.0		KCL POLYMER	
2330	1.40	31.0		KCL POLYMER	
2554	1.39	41.0		KCL POLYMER	
2707	1.42	33.0		KCL/POLYMER	
3015	1.39	34.0		KCL/POLYMER	
3018	1.39	35.0		KCL/POLYMER	
3172	1.39	37.0		KCL/POLYMER	
3183	1.39	36.0		KCL/POLYMER	
3225	1.39	31.0		KCL/POLYMER	

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]
3014 Formation pressure (Formasjonstrykk)	pdf	0.23

