General information

Wellbore name	15/6-8 A
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	886-L
Drilling facility	BYFORD DOLPHIN
Drilling days	14
Entered date	05.04.1997
Completed date	18.04.1997
Release date	18.04.1999
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]	2480.0
Final vertical depth (TVD) [m RKB]	2422.0
Maximum inclination [°]	25.6
Bottom hole temperature [°C]	77
Oldest penetrated age	PALEOCENE
Oldest penetrated formation	HEIMDAL 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	3077

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, Blod°ks 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.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1530.00	2478.00

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	2438.0	2448.2	[m]

Total core sample length [m]	10.2
Cores available for sampling?	YES

Core photos


2438-2443m


2443-2448m


2448-2449m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1990.0	[m]	DC	RRI
2010.0	[m]	DC	RRI
2030.0	[m]	DC	RRI
2050.0	[m]	DC	RRI
2070.0	[m]	DC	RRI
2100.0	[m]	DC	RRI
2120.0	[m]	DC	RRI
2140.0	[m]	DC	RRI
2160.0	[m]	DC	RRI
2180.0	[m]	DC	RRI
2200.0	[m]	DC	RRI
2220.0	[m]	DC	RRI
2240.0	[m]	DC	RRI
2260.0	[m]	DC	RRI
2280.0	[m]	DC	RRI
2300.0	[m]	DC	RRI
2320.0	[m]	DC	RRI
2340.0	[m]	DC	RRI
2360.0	[m]	DC	RRI
2379.0	[m]	DC	RRI
2400.0	[m]	DC	RRI
2400.0	[m]	DC	RRI
2421.0	[m]	DC	RRI
2436.0	[m]	DC	RRI
2460.0	[m]	DC	RRI
2478.0	[m]	DC	RRI

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
127	NORDLAND GP
773	UTSIRA FM
1080	HORDALAND GP
1179	SKADE FM
1248	UNDIFFERENTIATED
1362	NO FORMAL NAME
1390	UNDIFFERENTIATED
1811	GRID FM
2086	NO FORMAL NAME
2264	ROGALAND GP
2264	BALDER FM
2323	SELE FM
2382	LISTA FM
2431	HEIMDAL FM

Composite logs

Document name	Document format	Document size [MB]
3077	pdf	0.35

Geochemical information

Document name	Document format	Document size [MB]
3077_1	pdf	0.81

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

Document name	Document format	Document size [MB]
3077_15_6_8_A_COMPLETION_LOG	pdf	6.77
3077_15_6_8_A_COMPLETION_REPORT	pdf	42.13

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBIL HEXDIP GR TTRM	1490	2460
MLL DLL DAC GR TTRM	1490	2473
MWD - DIR GR	127	512
MWD LWD - DIR GR RES	512	1505
MWD LWD - DIR GR RES PWD	1495	2438
VSP	127	2435
ZDL CN SL TTRM	1490	2469

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		2480.0	8 1/2	2480.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
150	1.35	25.0		KCL/POLYMER	
1890	1.39	29.0		KCL/POLYMER	
2300	1.39	34.0		KCL/POLYMER	
2438	1.39	32.0		KCL/POLYMER	
2480	1.39	40.0		KCL/POLYMER	