

**General information**

Wellbore name	25/4-5
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	HEIMDAL
Discovery	25/4-1 Heimdal
Well name	25/4-5
Seismic location	LINE 780 - 206
Production licence	036
Drilling operator	Elf Petroleum Norge AS
Drill permit	254-L
Drilling facility	DYVI ALPHA
Drilling days	273
Entered date	26.06.1980
Completed date	26.03.1981
Release date	26.03.1983
Publication date	15.02.2006
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL/GAS
Discovery wellbore	NO
1st level with HC, age	PALEOCENE
1st level with HC, formation	HEIMDAL FM
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	SLEIPNER FM
3rd level with HC, age	EARLY JURASSIC
3rd level with HC, formation	STATFJORD GP
Kelly bushing elevation [m]	25.3
Water depth [m]	121.0
Total depth (MD) [m RKB]	4355.0
Final vertical depth (TVD) [m RKB]	4355.0
Maximum inclination [°]	5.7
Bottom hole temperature [°C]	140
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SMITH BANK FM
Geodetic datum	ED50



NS degrees	59° 34' 4.75" N
EW degrees	2° 11' 39.21" E
NS UTM [m]	6603729.89
EW UTM [m]	454469.52
UTM zone	31
NPDID wellbore	201

Wellbore history

**General**

Well 25/4-5 was drilled ca 1 km SW of the 25/4-1 Heimdal Discovery well. The primary objective was to test the Vestland Group and the Statfjord Formation on a down-thrown panel west of the high drilled by the 25/4-1 well, which found several hydrocarbon bearing Jurassic levels in addition to the main Heimdal Discovery. The secondary objective was to appraise the gas-bearing section in the Paleocene Heimdal Formation.

Operations and results

Wildcat well 25/4-5 was spudded with the semi-submersible installation Dyvi Alpha on 26 June 1980 and drilled to TD at 4355 m in the Triassic Smith Bank Formation. Operations were interrupted by a strike that led to 4.5 days down time.

The Heimdal reservoir was found at 2150 m with gas down to a GOC at 2172 m and a 7 m oil column down to the oil-water contact at 2179 m. Drill with 8 1/2" bit from 3600 m to 4198.5 m. When running in hole in the 8 1/2" section the bit stuck at 4174. The hole was then backed off to 3891 m and a technical sidetrack was made from 3769 m.

A 128 m thick Vestland Group was penetrated from 3692 m to 3820 m. The Hugin and Sleipner formations were found water bearing with residual hydrocarbons with the exception of a thin oil bearing interval from 3777.5 m to 3781.5 m. RFT sampling over this zone indicated a water gradient, but an RFT fluid sample recovered both oil (0.25 l) and gas (139 l).

The Statfjord was encountered at 3949 m and was 178 m thick. It contained sandstones in the upper 50 m and in the interval from 4064 to 4098 m. The upper interval could be interpreted as hydrocarbon bearing. Direct fluorescence (yellow) and cuts (yellow -pale blue) were observed on the cores from this formation, and migrated hydrocarbons were also found by post-well organic geochemical analyses. Tests (DST and RFT) recovered only water.

The triassic Group contained a 50 meters sandstone reservoir, which was drilled with good shows. The tests showed that the sandstones had to be considered as tight, producing only small volumes of water.

Nine cores were cut between 2130 and 2235 m in the Lista and Heimdal Formations, 2 cores were cut between 3695 and 3730.7 m in the Hugin Formation, 4 cores were cut between 3954.5 m and 4014.6 m in the Statfjord Formation, and two cores were cut from 4140 m to 4158 m and 4183.5 m to 4198.5 m in the Skagerrak Formation. Wire line fluid samples (FIT and RFT) were taken at 3698 m (water without gas), 3779.2 m (139 l gas and 0.25 l oil), 3779.5 m (85 l gas and 2 l water), 4072 m (water without gas), 3996.8 m (water without gas), and at 4160 m (81 l gas and 10 l water).

The well was permanently abandoned on 26 March 1981 as a gas and oil appraisal well.

Testing

The Heimdal Formation was not tested. Three drill stem tests were conducted in the Jurassic and Triassic. DST 1 from 4154 m to 4176 m in the Triassic Skagerrak Formation did not produce any reservoir fluid to surface, even after acid treatment. Tight reservoir was concluded. DST2 from 3960 m to 3999 m in the middle Statfjord Formation produced water with gas bubbles at a rate of 19 Sm³/day. DST3 in the upper Statfjord Formation produced water with gas bubbles at a rate of 34 Sm³/day.

Cuttings at the Norwegian Offshore Directorate



Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
211.00	4332.00

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	2130.0	2146.0	[m]
2	2148.0	2152.0	[m]
3	2154.5	2158.0	[m]
4	2158.0	2172.8	[m]
5	2172.0	2180.4	[m]
6	2181.0	2190.9	[m]
7	2191.0	2199.6	[m]
8	2200.0	2218.0	[m]
9	2224.0	2232.0	[m]
10	3695.0	3713.1	[m]
11	3713.0	3730.8	[m]
12	3954.5	3970.5	[m]
13	3971.5	3984.0	[m]
14	3985.0	3998.5	[m]
15	3998.5	4014.5	[m]
16	4183.5	4198.0	[m]
17	4140.0	4158.0	[m]

Total core sample length [m]	217.5
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1950.0	[m]	DC	RRI
1960.0	[m]	DC	RRI
1970.0	[m]	DC	RRI
1990.0	[m]	DC	RRI
2010.0	[m]	DC	RRI
2033.0	[m]	DC	RRI
2060.0	[m]	DC	RRI



2080.0	[m]	DC	RRI
2100.0	[m]	DC	RRI
2120.0	[m]	DC	RRI
2130.0	[m]	DC	RRI
2140.0	[m]	DC	RRI
2150.0	[m]	DC	RRI
2160.0	[m]	DC	RRI
2166.0	[m]	DC	RRI
2238.0	[m]	DC	RRI
2266.0	[m]	DC	RRI
2290.0	[m]	DC	RRI
2310.0	[m]	DC	RRI
2356.0	[m]	DC	RRI
2378.0	[m]	DC	RRI
2404.0	[m]	DC	RRI
2428.0	[m]	DC	RRI

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	TEST1	4154.00	4176.00	WATER	15.03.1981 - 00:00	YES
DST	DST2	4065.00	4088.00	WATER	09.03.1981 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
146	NORDLAND GP
387	UTSIRA FM
433	UNDIFFERENTIATED
775	HORDALAND GP
870	SKADE FM
925	NO FORMAL NAME
993	GRID FM
1090	NO FORMAL NAME
1343	GRID FM
1372	NO FORMAL NAME



1998	ROGALAND GP
1998	BALDER FM
2033	SELE FM
2090	LISTA FM
2150	HEIMDAL FM
2347	LISTA FM
2550	TY FM
2659	SHETLAND GP
2659	JORSALFARE FM
2960	KYRRE FM
3258	TRYGGVASON FM
3376	BLODØKS FM
3379	SVARTE FM
3479	CROMER KNOLL GP
3479	RØDBY FM
3507	SOLA FM
3574	ÅSGARD FM
3592	VIKING GP
3592	DRAUPNE FM
3619	HEATHER FM
3692	VESTLAND GP
3692	HUGIN FM
3730	SLEIPNER FM
3820	DUNLIN GP
3949	STATFJORD GP
4127	NO GROUP DEFINED
4127	SKAGERRAK FM
4207	SMITH BANK FM

Composite logs

Document name	Document format	Document size [MB]
201	pdf	0.83

Geochemical information





Document name	Document format	Document size [MB]
201_1	pdf	0.19
201_2	pdf	0.78

Documents - older Norwegian Offshore Directorate WDSS reports and other related documents

Document name	Document format	Document size [MB]
201_01_WDSS_General_Information	pdf	0.12
201_02_WDSS_completion_log	pdf	0.26

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

Document name	Document format	Document size [MB]
201_01_25_4_5_Completion_report	pdf	4.42
201_02_25_4_5_Completion_log	pdf	1.60

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	4154	4176	0.0
2.0	4065	4088	0.0
3.0	3969	3999	0.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				
2.0				
3.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0					
2.0					
3.0					



**Logs**

Log type	Log top depth [m]	Log bottom depth [m]
BGT	1950	2821
BGT	3594	3880
BHC GR	1400	2188
CBL VDL GR	425	2817
CBL VDL GR	1550	3584
DLL MSFL	1950	2235
DLL MSFL	3594	4253
FDC CNL GR	866	4355
HDT	1916	2814
HDT	1950	2821
HDT	3590	4355
ISF BHC GR	267	4355
LDT CNL	1950	2821
NGT	1950	2820
NGT	3590	4355

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	207.0	36	297.6	0.00	LOT
SURF.COND.	20	866.0	26	880.0	1.45	LOT
INTERM.	13 3/8	2817.0	17 1/2	2822.0	1.72	LOT
INTERM.	9 5/8	3590.0	12 1/4	3600.0	2.14	LOT
LINER	7	4250.0	8 1/2	4355.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
2396	1.40	30.0	20.0	seawater	
2448	1.40	30.0	20.0	seawater	
4080	1.82	46.0	16.0	seawater	
4355	1.75			seawater	

**Thin sections at the Norwegian Offshore Directorate**

Depth	Unit
3700.18	[m]
3703.58	[m]
3711.16	[m]
3718.06	[m]
3722.80	[m]
3729.30	[m]

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]
201 Formation pressure (Formasjonstrykk)	pdf	0.22

