

**General information**

Wellbore name	7/7-2
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	BRYNHILD
Discovery	7/7-2 Brynhild
Well name	7/7-2
Seismic location	AHN 8707 - 212 SP. 110
Production licence	148
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	710-L
Drilling facility	DEEPSEA BERGEN
Drilling days	97
Entered date	20.01.1992
Completed date	25.04.1992
Release date	25.04.1994
Publication date	19.10.2006
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	ULA FM
Kelly bushing elevation [m]	23.0
Water depth [m]	82.0
Total depth (MD) [m RKB]	3430.0
Final vertical depth (TVD) [m RKB]	3430.0
Maximum inclination [°]	3.4
Bottom hole temperature [°C]	147
Oldest penetrated age	LATE PERMIAN
Oldest penetrated formation	ZECHSTEIN GP
Geodetic datum	ED50
NS degrees	57° 29' 4.16" N
EW degrees	2° 18' 17.59" E
NS UTM [m]	6371675.99
EW UTM [m]	458321.93



UTM zone	31
NPDID wellbore	1868

Wellbore history

**General**

Well 7/7-2 is located ca 8 km east of the UK border on the Jæren High in the North Sea. It was the second commitment well within the licence PL-148 and was designed to test the A-prospect, interpreted as a Late Jurassic channel sandstone. Planned TD was in Permian sediments or 3500 m, whichever came first.

Operations and results

Wildcat well 7/7-2 was spudded with the semi-submersible installation Deepsea Bergen on 20 January 1992 and drilled to TD at 3430 m in the Permian Zechstein Group. The well took 100 days to drill and test, 20 days more than planned. This was mainly due to a 25% higher pore pressure than prognosed in the reservoir, resulting in a plug-back and 9 5/8" casing above reservoir, and not at TD as programmed. Other contributing factors were re-spud after lost stinger in 30" casing, two occasions of pulling BOP due to leakage and leak on swivel stem on top drive. The DSTs experienced severe difficulties with leakage and operation of down hole valves resulting in two mis-runs with testing string and a shortened DST no. 2. The well was drilled with CMC EHV and seawater down to 904 m, with KCl/PHPA/PAC from 904 m to 2744 m, and with ANCOTEMP mud from 2744 m to TD.

The greater part of the prospect, the Late Jurassic Ula sandstone was encountered at 3327 m, and proved to be sandy. The Jurassic reservoir lithology consisted primarily of fine, well-sorted silica-cemented sandstone with poor visual porosity. Subsequent testing from 3348 - 3350 m showed a very tight formation, however testing from 3333 - 3342 m yielded oil. No oil-water contact was encountered, but organic geochemical analyses detected oil saturation in two intervals from the top of the reservoirs down to 3341, and from 3345 down to 3347 m.

Four and a half m of shaley core was recovered in two cores from 3242 m to 3247 in the Mandal Formation. Good oil shows were observed in these cores. Organic geochemical analyses proved them to be excellent oil-prone source rock and with a maturity well within the oil window. Three cores were cut from 3338 m to 3363 m in the lower part of the Ula Formation and 17 m into the Triassic Smith Bank Formation. FMT pressures indicated a 0.766 g/cm³ oil gradient over the reservoir interval. Two FMT fluid samples were taken. Sample 4B at 3334 m recovered only mud filtrate. Sample 4C at 3335.4 m recovered 18.6 l mud filtrate and 200 ml of HC film.

The well was permanently abandoned on 25 April 1992 as an oil discovery.

Testing

Two drill stem tests were performed in the well, DST 1 in Triassic sandstones and DST 2 in sandstones of Late Jurassic age. In DST 1 a two-metre interval from 3348 m to 3350 m was perforated. No reservoir fluid was produced to surface, but oil was trapped between two valves in the test string and the string content was also reversed out and directed to tank. Approximately 15 litres of oil were recovered from the test.

The well was perforated from 3333 m to 3342 m in DST 2. It produced 784 Sm³/d of oil through a 24/64" (9.53 mm) choke, with a wellhead pressure of 15218 kPa and a temperature of 80 °C. The gas-oil ratio was measured to 20 Sm³/Sm³ with a separator pressure of 2032 - 2150 kPa and a separator temperature of 65 - 71 °C. Maximum down hole temperature was 144 deg C.

Cuttings at the Norwegian Offshore Directorate



Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
910.00	3422.00

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	3242.0	3243.0	[m]
2	3243.0	3246.5	[m]
3	3338.0	3348.6	[m]
4	3350.0	3357.1	[m]
5	3357.0	3368.4	[m]

Total core sample length [m]	33.6
Cores available for sampling?	YES

Core photos



3242-3243m



3243-3246m



3338-3343m



3348-3349m



3350-3355m



3355-3357m



3357-3362m



3362-3363m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1350.0	[m]	DC	MILL
1370.0	[m]	DC	MILL
1380.0	[m]	DC	MILL



1390.0	[m]	DC	MILL
1400.0	[m]	DC	MILL
1430.0	[m]	DC	MILL
1440.0	[m]	DC	MILL
1460.0	[m]	DC	MILL
1470.0	[m]	DC	MILL
1490.0	[m]	DC	MILL
1500.0	[m]	DC	MILL
1520.0	[m]	DC	MILL
1530.0	[m]	DC	MILL
1550.0	[m]	DC	MILL
1560.0	[m]	DC	MILL
1580.0	[m]	DC	MILL
1590.0	[m]	DC	MILL
1610.0	[m]	DC	MILL
1620.0	[m]	DC	MILL
1640.0	[m]	DC	MILL
1650.0	[m]	DC	MILL
1670.0	[m]	DC	MILL
1680.0	[m]	DC	MILL
1690.0	[m]	DC	MILL
1710.0	[m]	DC	MILL
1730.0	[m]	DC	MILL
1740.0	[m]	DC	MILL
1760.0	[m]	DC	MILL
1770.0	[m]	DC	MILL
1790.0	[m]	DC	MILL
1800.0	[m]	DC	MILL
1820.0	[m]	DC	MILL
1830.0	[m]	DC	MILL
1850.0	[m]	DC	MILL
1860.0	[m]	DC	MILL
1880.0	[m]	DC	MILL
1890.0	[m]	DC	MILL
1910.0	[m]	DC	MILL
1920.0	[m]	DC	MILL
1940.0	[m]	DC	MILL
1950.0	[m]	DC	MILL
1970.0	[m]	DC	MILL
1980.0	[m]	DC	MILL



2000.0	[m]	DC	MILL
2010.0	[m]	DC	MILL
2030.0	[m]	DC	MILL
2040.0	[m]	DC	MILL
2060.0	[m]	DC	MILL
2070.0	[m]	DC	MILL
2090.0	[m]	DC	MILL
2100.0	[m]	DC	MILL
2120.0	[m]	DC	MILL
2130.0	[m]	DC	MILL
2150.0	[m]	DC	MILL
2160.0	[m]	DC	MILL
2180.0	[m]	DC	MILL
2190.0	[m]	DC	MILL
2210.0	[m]	DC	MILL
2220.0	[m]	DC	MILL
2240.0	[m]	DC	MILL
2250.0	[m]	DC	MILL
2270.0	[m]	DC	MILL
2280.0	[m]	DC	MILL
2300.0	[m]	DC	MILL
2310.0	[m]	DC	MILL
2330.0	[m]	DC	MILL
2340.0	[m]	DC	MILL
2360.0	[m]	DC	MILL
2370.0	[m]	DC	MILL
2390.0	[m]	DC	MILL
2400.0	[m]	DC	MILL
2415.0	[m]	DC	MILL
2430.0	[m]	DC	MILL
2448.0	[m]	DC	MILL
2460.0	[m]	DC	MILL
2475.0	[m]	DC	MILL
2490.0	[m]	DC	MILL
2505.0	[m]	DC	MILL
2520.0	[m]	DC	MILL
2535.0	[m]	DC	MILL
2550.0	[m]	DC	MILL
2565.0	[m]	DC	MILL
2580.0	[m]	DC	MILL



2595.0	[m]	DC	MILL
2610.0	[m]	DC	MILL
2625.0	[m]	DC	MILL
2640.0	[m]	DC	MILL
2655.0	[m]	DC	MILL
2670.0	[m]	DC	MILL
2685.0	[m]	DC	MILL
2700.0	[m]	DC	MILL
2715.0	[m]	DC	MILL
3100.0	[m]	DC	MILL
3110.0	[m]	DC	MILL
3120.0	[m]	DC	MILL
3140.0	[m]	DC	MILL
3170.0	[m]	DC	MILL
3180.0	[m]	DC	MILL
3200.0	[m]	DC	MILL
3215.0	[m]	DC	MILL
3219.0	[m]	SWC	STATO
3230.0	[m]	DC	MILL
3241.0	[m]	SWC	STATO
3251.0	[m]	DC	MILL
3258.0	[m]	SWC	STATO
3263.0	[m]	SWC	STATO
3266.0	[m]	SWC	STATO
3271.0	[m]	SWC	STATO
3275.0	[m]	DC	MILL
3278.0	[m]	DC	MILL
3284.0	[m]	DC	MILL
3290.0	[m]	DC	MILL
3296.0	[m]	DC	MILL
3302.0	[m]	DC	MILL
3308.0	[m]	DC	MILL
3314.0	[m]	DC	MILL
3320.0	[m]	DC	MILL
3326.0	[m]	DC	MILL
3332.0	[m]	SWC	STATO
3338.3	[m]	C	STATO
3339.3	[m]	C	STATO
3339.7	[m]	C	STATO
3339.9	[m]	C	STATO



3340.1	[m]	C	STATO
3341.8	[m]	C	STATO
3342.4	[m]	C	STATO
3343.2	[m]	C	STATO
3344.1	[m]	C	STATO
3346.5	[m]	C	STATO
3348.6	[m]	C	MILL
3358.7	[m]	C	STATO
3377.0	[m]	DC	MILL
3386.0	[m]	DC	MILL
3395.0	[m]	DC	MILL
3404.0	[m]	DC	MILL
3413.0	[m]	DC	MILL
3422.0	[m]	DC	MILL
3428.0	[m]	DC	MILL

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	TEST2	3333.00	3342.00		15.04.1992 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
105	NORDLAND GP
1179	HORDALAND GP
2471	ROGALAND GP
2471	BALDER FM
2510	SELE FM
2665	LISTA FM
2723	SHETLAND GP
2723	EKOFISK FM
2854	TOR FM
2975	HOD FM
3106	CROMER KNOLL GP
3106	RØDBY FM



3126	SOLA FM
3140	TUXEN FM
3153	ÅSGARD FM
3240	TYNE GP
3240	MANDAL FM
3282	FARSUND FM
3327	VESTLAND GP
3327	ULA FM
3347	HEGRE GP
3347	SMITH BANK FM
3388	ZECHSTEIN GP

Composite logs

Document name	Document format	Document size [MB]
1868_7_7_2	pdf	0.60

Geochemical information

Document name	Document format	Document size [MB]
1868_1	pdf	2.85

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

Document name	Document format	Document size [MB]
1868_01_WDSS_General_Information	pdf	0.49
1868_02_WDSS_completion_log	pdf	0.19

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

Document name	Document format	Document size [MB]
1868_7_7_2_COMPLETION_REPORT_AND_LOG	pdf	20.42





Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3333	3342	9.5

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0	35.000	15.000		80

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	787	15740	0.877	0.840	20

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL GR	1000	2727
CBL VDL GR	1500	3283
CDL CN SPL	3285	3431
CDL CN SPL GR	2727	3304
DIFL ACL GR	2727	3303
DIFL ACL MLL GR	3285	3431
DIFL ACL ZDL GR	886	2734
DIPLOG	3285	3432
DIPS GR	3075	3304
FMT GR	3316	3333
FMT HP SG GR	3334	3374
FMT SG GR	3335	0
MWD - GR RES DIR	105	3430
SWC	3328	3410
SWC GR	3110	3282
VELOCITY	1515	3425
VSP	470	3420

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	165.0	36	165.0	0.00	LOT
INTERM.	20	886.0	26	886.0	2.05	LOT
INTERM.	13 3/8	2728.0	17 1/2	2728.0	2.00	LOT
INTERM.	9 5/8	3283.0	12 1/4	3283.0	2.05	LOT
LINER	7	3420.0	8 1/2	3420.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
1920	1.55	34.0		WATER BASED	
2077	1.55	39.0		WATER BASED	
2083	1.55	34.0		WATER BASED	
2182	1.55	30.0		WATER BASED	
2330	1.60	24.0		WATER BASED	
2448	1.55	34.0		WATER BASED	
2525	1.55	32.0		WATER BASED	
2586	1.55	36.0		WATER BASED	
2719	1.55	32.0		WATER BASED	
2744	1.60	24.0		WATER BASED	
2840	1.55	30.0		WATER BASED	
2949	1.55	36.0		WATER BASED	
3043	1.60	41.0		WATER BASED	
3100	1.62	40.0		WATER BASED	
3117	1.67	40.0		WATER BASED	
3121	1.62	43.0		WATER BASED	
3166	1.62	40.0		WATER BASED	
3242	1.67	38.0		WATER BASED	
3293	1.70	48.0		WATER BASED	
3312	1.70	43.0		WATER BASED	
3328	1.87	26.0		WATER BASED	
3330	1.95	39.0		WATER BASED	
3334	2.04	26.0		WATER BASED	
3338	1.96	38.0		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]
1868 Formation pressure (Formasjonstrykk)	pdf	0.22

