



General information





Wellbore name	7/12-2
Type	EXPLORATION
Purpose	WILDCAT
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	ULA
Discovery	7/12-2 Ula
Well name	7/12-2
Seismic location	
Production licence	019
Drilling operator	BP Norway Limited U.A.
Drill permit	161-L
Drilling facility	NORSKALD
Drilling days	82
Entered date	04.07.1976
Completed date	23.09.1976
Release date	23.09.1978
Publication date	13.08.2015
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	ULA FM
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	GASSUM FM
Kelly bushing elevation [m]	25.0
Water depth [m]	71.0
Total depth (MD) [m RKB]	3676.0
Bottom hole temperature [°C]	154
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	GASSUM FM
Geodetic datum	ED50
NS degrees	57° 6' 41.05" N
EW degrees	2° 50' 51.04" E
NS UTM [m]	6329939.23
EW UTM [m]	490763.87
UTM zone	31
NPDID wellbore	295



Wellbore history

General

Well 7/12-2 was drilled on a salt induced structure on the east side of the Cod Terrace in the North Sea. The primary objective was to evaluate potential Upper Jurassic and Triassic reservoirs

The well is Type well for the Ula Formation and Reference well for the Farsund Formation.

Operations and results

Wildcat well 7/12-2 was spudded with the semi-submersible installation Norskald on 4 July 1976 and drilled to TD at 3676 m in the Early Jurassic Gassum Formation. The well was drilled with seawater/gel down to 158.5 m and with seawater/lime Drispac mud from 158.5 m to TD down to 495 m and with a lime/Drispac mud from 495 m to TD.

Well 7/12-2 penetrated a major Late Jurassic reservoir (Ula Formation) and was terminated within a hydrocarbon bearing sequence of poor quality sands and interbedded shales in the Gassum Formation. Core analysis and log interpretation indicate an Ula Formation sandstone reservoir of 128 m net thickness (154 m gross) with porosities ranging from 14 to 28%, permeabilities from a few millidarcy to over two darcy and water saturations from 5 to over 50%. The Ula Formation was oil bearing from top to base at 3532 m in an oil down-to setting. The Gassum Formation sandstones have a porosity between 11 and 19%, average permeability of 1 md and water saturation generally in excess of 70%.

Eleven cores were cut in the well. Cores one to ten were cut in succession from 3385.75 m (3380.95 m logger's depth) to 3476.9 m (3470.9 m logger's depth) in the Ula Formation. The overall core recovery for this section was 97.3%. Core no 11 was cut in the Early Jurassic from 3634.2 to 3652.3 m with 100% recovery. The core-log depth shifts varied from -4.8 m to -6.0 m. No fluid samples were taken on wire line.

The well was suspended on 23 September 1976 for later re-entry and testing of reservoir productivity. It is classified as an oil discovery.

Testing

Six drill stem tests were performed: DST 1 and 1a in the Early Jurassic Gassum Formation and the others in the Late Jurassic Ula Formation.

DST 1 tested the interval 3640.5 to 3665.5 m. the test did not produce oil to the surface, but about 3 - 5 gallons of clean oil was found in the drill collars immediately below the downhole valve. The oil gravity was estimated to 40°API. The DST temperature was 145.6 °C.

DST 1a was a retest of the DST 1 interval with a different test string. Again the test did not produce to surface, but about 0.6 m³ (four bbls) of clean oil was reversed out of the test string. The oil gravity was 41.3 °API and the gas gravity was 0.805 (air = 1). The gas and oil had an aromatic smell, guessed to be from toluene.

DST 2 tested the interval 3525 to 3532 m. The test produced small quantities of gas but no oil to surface. Based on reversed content the rates in the test was estimated to 24 Sm³ oil /day. The oil gravity was 37.7 °API. The DST temperature was 145.6 °C.

DST 3 tested the interval 3426.5 to 3438.7 m. The test produced 795 Sm³ oil /day through a 1" choke. The GOR was 102 Sm³/Sm³, the oil gravity was 40.2 °API and the



gas gravity was 0.748 (air = 1). The test was a mechanical misrun, as the valves were not fully shut during build-ups.

DST 3a was a retest of the DST 3 interval with a different test string. The test produced up to 1132 Sm³ oil /day through a 0.5" choke. The GOR was 107 Sm³/Sm³, the oil gravity was 40.4 °API and the gas gravity was 0.751 (air = 1). The DST temperature was 146.1 °C and this temperature was regarded as the most representative of all DST temperatures in the well.

DST 4 tested the interval 3383.7 to 3393 m. The test did not achieve stabilised rates but produced on average ca 95 Sm³ oil /day. The GOR was similar as in DST 3a, the oil gravity was 41.0 °API and the gas gravity was 0.817. The DST temperature was 145.6.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
166.00	3676.00

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	3385.8	3404.0	[m]
2	3404.0	3414.0	[m]
3	3414.0	3417.2	[m]
4	3417.2	3420.5	[m]
5	3421.7	3429.0	[m]
6	3430.0	3438.5	[m]
7	3439.1	3440.2	[m]
8	3440.3	3449.8	[m]
9	3449.8	3458.9	[m]
10	3458.9	3476.9	[m]
11	3634.2	3652.3	[m]

Total core sample length [m]	106.3
Cores available for sampling?	YES

Core photos



3385-3390m



3390-3395m



3395-3397m



3395-3400m



3400-3404m



3404-3409m



3409-3414m



3414-3417m



3417-3420m



3421-3426m



3426-3430m



3430-3435m



3435-3438m



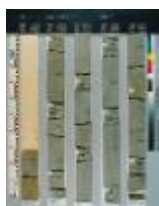
3439-3440m



3440-3449m



3445-3449m



3449-3454m



3454-3458m



3458-3463m



3463-3468m



3468-3473m



3473-3475m



3634-3639m



3639-3644m



3644-3649m



3649-3652m

**Palynological slides at the Norwegian Offshore Directorate**

Sample depth	Depth unit	Sample type	Laboratory
3259.0	[m]	DC	PETROSTR
3265.0	[m]	DC	PETROS
3271.0	[m]	DC	PETROS
3277.0	[m]	DC	PETROS
3283.0	[m]	DC	PETROS
3289.0	[m]	DC	PETROS
3295.0	[m]	DC	PETROS
3301.0	[m]	DC	PETROS
3307.0	[m]	DC	PETROS
3313.0	[m]	DC	PETROS
3319.0	[m]	DC	PETROS
3325.0	[m]	DC	PETROS
3331.0	[m]	DC	PETROS
3337.0	[m]	DC	PETROS
3343.0	[m]	DC	PETROS
3349.0	[m]	DC	PETROS
3351.0	[m]	DC	PETROS
3361.0	[m]	DC	PETROS
3364.0	[m]	DC	PETROS
3367.0	[m]	DC	PETROS
3373.0	[m]	DC	PETROS
3379.0	[m]	DC	PETROS
3385.0	[m]	DC	PETROS
3385.9	[ft]	C	PETROS
3386.0	[m]	C	PETROS
3386.0	[m]	C	APT
3386.7	[ft]	C	PETROS
3391.0	[m]	C	APT
3396.6	[m]	C	APT
3397.1	[m]	C	APT
3397.7	[ft]	C	PETROS
3397.8	[m]	C	PETROS
3398.0	[m]	C	APT
3399.9	[m]	C	PETROS
3401.6	[m]	C	APT
3409.3	[m]	C	PETROS



3411.2 [m]	C	APT
3412.3 [ft]	C	PETROS
3414.0 [m]	C	APT
3416.5 [m]	C	PETROS
3416.5 [m]	C	PETROS
3416.5 [m]	C	APT
3419.4 [ft]	C	PETROS
3422.4 [m]	C	APT
3422.6 [m]	C	PETROS
3425.2 [m]	C	APT
3425.5 [ft]	C	PETROS
3425.5 [m]	C	APT
3426.1 [m]	C	PETROS
3432.6 [ft]	C	PETROS
3432.7 [m]	C	PETROS
3433.6 [ft]	C	PETROS
3434.0 [m]	C	APT
3434.3 [m]	C	APT
3437.0 [m]	C	APT
3438.2 [m]	C	APT
3438.3 [ft]	C	PETROS
3442.3 [ft]	C	PETROS
3442.7 [m]	C	PETROS
3443.0 [ft]	C	PETROS
3448.4 [m]	C	APT
3448.9 [m]	C	PETROS
3449.8 [ft]	C	PETROS
3449.9 [m]	C	APT
3452.3 [ft]	C	PETROS
3456.4 [m]	C	APT
3457.9 [ft]	C	PETROS
3458.8 [m]	C	APT
3461.0 [m]	C	PETROS
3463.2 [ft]	C	PETROS
3467.6 [m]	C	PETROS
3469.5 [ft]	C	PETROS
3469.6 [m]	C	APT
3469.7 [ft]	C	PETROS
3471.3 [m]	C	APT
3473.0 [m]	C	APT



3473.3	[ft]	C	PETROS
3474.0	[ft]	C	PETROS
3475.0	[m]	C	APT
3475.6	[m]	C	APT
3476.0	[m]	C	PETROS
3481.0	[m]	DC	PETROS
3487.0	[m]	DC	PETROS
3490.0	[m]	DC	PETROS
3493.0	[m]	DC	PETROS
3505.0	[m]	DC	PETROS
3511.0	[m]	DC	PETROS
3517.0	[m]	DC	PETROS
3520.0	[m]	DC	PETROS
3523.0	[m]	DC	PETROS
3529.0	[m]	DC	PETROS
3535.0	[m]	DC	PETROS
3547.0	[m]	DC	PETROS

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	DST1A	3640.20	3666.00		08.09.1976 - 00:00	YES
DST	DST2	3525.00	3532.00		11.09.1976 - 00:00	YES
DST	DST3	3426.50	3437.70		14.09.1976 - 00:00	YES
DST	DST4	3383.70	3393.00		18.09.1976 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
96	NORDLAND GP
96	UNDIFFERENTIATED
1428	HORDALAND GP
1428	UNDIFFERENTIATED
2516	ROGALAND GP



2516	BALDER FM
2527	SELE FM
2583	LISTA FM
2628	VIDAR FM
2702	LISTA FM
2723	VÅLE FM
2730	SHETLAND GP
2730	EKOFISK FM
2795	TOR FM
2970	HOD FM
3028	BLODØKS FM
3040	CROMER KNOLL GP
3040	RØDBY FM
3053	SOLA FM
3100	ÅSGARD FM
3262	TYNE GP
3262	MANDAL FM
3306	FARSUND FM
3379	VESTLAND GP
3379	ULA FM
3532	BRYNE FM
3554	NO GROUP DEFINED
3554	GASSUM FM

Geochemical information

Document name	Document format	Document size [MB]
295_GCH_1	pdf	0.24
295_GCH_2	pdf	0.46
295_GCH_3	pdf	0.10
295_GCH_4	pdf	0.29
295_GCH_5	pdf	0.14
295_GCH_6	pdf	1.05

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





Document name	Document format	Document size [MB]
295_01_WDSS_General_Information	pdf	0.28

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

Document name	Document format	Document size [MB]
295_7_12_2_COMPLETION_LOG	pdf	2.01
295_7_12_2_COMPLETION_REPORT	pdf	10.78

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3640	3666	76.0
1.1	3640	3666	76.0
2.0	3525	3532	0.0
3.0	3427	3439	24.5
3.1	3427	3438	12.3
4.0	3384	3393	76.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				145
1.1				
2.0				145
3.0				
3.1				146
4.0				145

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	6	8490	0.820		
1.1	1	8490	0.820		
2.0	23				
3.0	795		0.820	0.748	102
3.1	1129	11930	0.820	0.751	
4.0	84	7079	0.820	0.817	





Logs

Log type	Log top depth [m]	Log bottom depth [m]
BHC	3078	3501
CBL	2970	3666
CDM	3092	3668
DLL MSFL	3092	3668
FDC	1518	3113
FDC CNL	3092	3668
GR	94	484
ISF SON	484	3668
VELOCITY	96	3676

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	159.0	36	160.0	0.00	LOT
SURF.COND.	20	480.0	26	495.0	0.00	LOT
INTERM.	13 3/8	1523.0	17 1/2	1536.0	0.00	LOT
INTERM.	9 5/8	3092.0	12 1/4	3115.0	0.00	LOT
LINER	7	3675.0	8 1/2	3676.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
1219	1.31			waterbased	
3385	1.60			waterbased	