

**General information**

Wellbore name	16/7-4
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	SIGYN
Discovery	16/7-4 Sigyn
Well name	16/7-4
Seismic location	ST 8122-732 SP 317
Production licence	072
Drilling operator	Esso Exploration and Production Norway A/S
Drill permit	347-L
Drilling facility	GLOMAR BISCAY II
Drilling days	53
Entered date	15.10.1982
Completed date	06.12.1982
Release date	06.12.1984
Publication date	02.04.2007
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	YES
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	INTRA DRAUPNE FM SS
2nd level with HC, age	TRIASSIC
2nd level with HC, formation	SKAGERRAK FM
Kelly bushing elevation [m]	25.0
Water depth [m]	78.0
Total depth (MD) [m RKB]	2781.0
Final vertical depth (TVD) [m RKB]	2781.0
Maximum inclination [°]	2.25
Bottom hole temperature [°C]	96
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SKAGERRAK FM
Geodetic datum	ED50
NS degrees	58° 17' 9.75" N



EW degrees	2° 1' 30.07" E
NS UTM [m]	6461118.04
EW UTM [m]	442828.36
UTM zone	31
NPDID wellbore	91

Wellbore history

General

Well 16/7-4 is located ca 10 km southeast of the Sleipner Øst Field and 6 km east of the 15/9-15 gas discovery in the North Sea. The objective of the well was to test the presence of a structural trap in Jurassic/Triassic sandstones on the A-North Prospect in the southwest corner of Block 16/7.

Operations and results

Well 16/7-4 was spudded with the semi-submersible installation Glomar Biscay II on 15 October 1982 and drilled to TD at 2781 m in the Triassic Group. The well was drilled with seawater and gel all through.

Only 1.5 m Jurassic sediments (Draupne Formation) were present in well position. The Triassic Group sandstone was encountered at 2521.5 m and held a 117.8 m gas/condensate column from top and down to 2639.3 m (-2314.3 m subsea). The gas-bearing sandstones were found interbedded with a few thin shales. The reservoir quality was best near the top of the sand, becoming gradually poorer downwards. The net gas sand was 85.4 m with 23% porosity and 36% average water saturation. No shows were reported from above or below the hydrocarbon-bearing interval in the well.

Six conventional cores were cut from 2568 to 2681.5 m to in the Jurassic - Triassic interval. One Multi Formation Tester (MFT) fluid sample was taken at 2638.5 m. It recovered 1.2 litres of 57 deg API condensate, 1.3 Sm³ gas and 2 litres of water.

The well was permanently abandoned on 6 December 1982 as a gas/condensate discovery.

Testing

Two drill stem tests were performed in the Triassic Group.

DST 1 at 2590.5 - 2597 m flowed 199 Sm³ condensate and 385110 Sm³ gas /day through a 42/64" choke. The gas/condensate ratio was 1938 Sm³/Sm³, the oil gravity was 58 deg API, and the gas gravity was 0.791 (air = 1).

DST 2 at 2525 - 2535 m flowed 253 Sm³ condensate and 472890 Sm³ gas /day through a 42/64" choke. The gas/condensate ratio was 1871 Sm³/Sm³, the oil gravity was 59 deg API, and the gas gravity was 0.797 (air = 1).

Water, other than condensation of water vapour, was not produced in the two tests. The CO₂ content was between 0.3 and 0.4 %. H₂S was not detected.

Cuttings at the Norwegian Offshore Directorate



Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
170.00	2780.00

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	2568.0	2573.4	[m]
2	2591.0	2605.9	[m]
3	2607.0	2624.6	[m]
4	2625.0	2643.5	[m]
5	2643.5	2662.5	[m]
6	2662.5	2680.8	[m]

Total core sample length [m]	93.6
Cores available for sampling?	YES

Core photos



2568-2573m



2573-2574m



2591-2596m



2596-2601m



2601-2605m



2607-2612m



2612-2617m



2617-2622m



2622-2624m



2625-2630m



2630-2635m



2635-2640m



2640-2643m



2643-2648m



2648-2653m



2653-2658m



2658-2662m



2662-2667m



2667-2672m



2672-2677m



2677-2680m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
500.0	[m]	DC	
530.0	[m]	DC	
560.0	[m]	DC	
590.0	[m]	DC	
620.0	[m]	DC	
650.0	[m]	DC	
680.0	[m]	DC	
710.0	[m]	DC	
740.0	[m]	DC	
770.0	[m]	DC	
800.0	[m]	DC	
830.0	[m]	DC	
860.0	[m]	DC	
890.0	[m]	DC	
920.0	[m]	DC	
950.0	[m]	DC	
980.0	[m]	DC	
1010.0	[m]	DC	
1050.0	[m]	DC	
1080.0	[m]	DC	
1110.0	[m]	DC	
1140.0	[m]	DC	



1170.0 [m]	DC	
1200.0 [m]	DC	
1230.0 [m]	DC	
1260.0 [m]	DC	
1290.0 [m]	DC	
1320.0 [m]	DC	
1350.0 [m]	DC	
1380.0 [m]	DC	
1410.0 [m]	DC	
1440.0 [m]	DC	
1470.0 [m]	DC	
1500.0 [m]	DC	
1530.0 [m]	DC	
1560.0 [m]	DC	
1590.0 [m]	DC	
1620.0 [m]	DC	
1650.0 [m]	DC	
1680.0 [m]	DC	
1710.0 [m]	DC	
1740.0 [m]	DC	
1770.0 [m]	DC	
1800.0 [m]	DC	
1830.0 [m]	DC	
1860.0 [m]	DC	
1890.0 [m]	DC	
1920.0 [m]	DC	
1950.0 [m]	DC	
1980.0 [m]	DC	
2009.0 [m]	DC	
2040.0 [m]	DC	
2070.0 [m]	DC	
2100.0 [m]	DC	
2129.0 [m]	DC	
2159.0 [m]	DC	
2189.0 [m]	DC	
2219.0 [m]	DC	
2249.0 [m]	DC	
2279.0 [m]	DC	
2300.0 [m]	DC	
2309.0 [m]	DC	



2318.0 [m]	DC	
2327.0 [m]	DC	
2338.0 [m]	DC	
2339.0 [m]	DC	
2354.0 [m]	DC	
2361.5 [m]	SWC	
2369.0 [m]	DC	
2384.0 [m]	DC	
2399.0 [m]	DC	
2405.0 [m]	DC	
2410.0 [m]	SWC	
2414.0 [m]	DC	
2426.0 [m]	SWC	
2429.0 [m]	DC	
2438.0 [m]	DC	
2444.0 [m]	DC	
2453.0 [m]	DC	
2459.0 [m]	DC	
2465.0 [m]	DC	
2467.0 [m]	DC	
2474.0 [m]	DC	
2483.0 [m]	SWC	
2489.0 [m]	DC	
2490.0 [m]	SWC	
2495.5 [m]	SWC	
2501.0 [m]	DC	
2509.5 [m]	SWC	
2517.0 [m]	SWC	
2519.0 [m]	DC	
2520.5 [m]	SWC	
2522.5 [m]	SWC	
2525.0 [m]	DC	
2534.0 [m]	DC	
2535.0 [m]	SWC	
2536.5 [m]	SWC	
2538.0 [m]	SWC	
2540.0 [m]	SWC	
2540.0 [m]	DC	
2542.0 [m]	SWC	
2549.0 [m]	SWC	



2549.0 [m]	DC	
2553.5 [m]	SWC	
2555.0 [m]	SWC	
2558.0 [m]	SWC	
2560.0 [m]	SWC	
2564.0 [m]	DC	
2568.3 [m]	C	
2569.0 [m]	C	
2573.0 [m]	SWC	
2579.0 [m]	DC	
2581.2 [m]	SWC	
2586.7 [m]	SWC	
2589.7 [m]	SWC	
2593.3 [m]	C	
2594.0 [m]	DC	
2596.5 [m]	C	
2597.0 [m]	C	
2597.6 [m]	SWC	
2598.4 [m]	C	
2602.3 [m]	C	
2602.5 [m]	C	
2603.8 [m]	C	
2609.0 [m]	DC	
2613.5 [m]	C	
2613.7 [m]	C	
2623.7 [m]	C	
2624.0 [m]	DC	
2626.5 [m]	C	
2626.7 [m]	C	
2626.7 [m]	C	
2639.0 [m]	DC	
2641.0 [m]	C	
2645.0 [m]	DC	
2678.2 [m]	C	
2687.0 [m]	DC	
2690.0 [m]	DC	
2692.7 [m]	SWC	
2701.2 [m]	SWC	
2702.0 [m]	DC	
2718.7 [m]	SWC	



2720.0	[m]	DC	
2735.0	[m]	DC	
2747.2	[m]	SWC	
2750.0	[m]	DC	
2752.7	[m]	SWC	
2765.0	[m]	DC	
2765.5	[m]	SWC	
2774.0	[m]	SWC	
2777.0	[m]	DC	
2780.0	[m]	DC	

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	DST 1	2590.00	2597.00	CONDE NSATE	28.11.1982 - 00:00	YES
DST	DST 1,1	2565.00	2572.00		28.11.1982 - 00:00	YES
DST	DST2	2525.00	2535.00	CONDE NSATE	30.11.1982 - 00:00	YES
DST	DST 2,1	2500.00	2535.00	CONDE NSATE	30.11.1982 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
103	NORDLAND GP
848	UTSIRA FM
1061	HORDALAND GP
2052	ROGALAND GP
2052	BALDER FM
2099	SELE FM
2166	LISTA FM
2220	VÅLE FM
2229	SHETLAND GP
2229	EKOFISK FM
2238	TOR FM
2408	HOD FM



2465	BLODØKS FM
2493	CROMER KNOLL GP
2520	VIKING GP
2520	DRAUPNE FM
2521	HEGRE GP
2521	SKAGERRAK FM

Geochemical information

Document name	Document format	Document size [MB]
91_1	pdf	0.13
91_2	pdf	0.45
91_3	pdf	1.66
91_4	pdf	0.14

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

Document name	Document format	Document size [MB]
91_01_WDSS_General_Information	pdf	0.17
91_02_WDSS_completion_log	pdf	0.21

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

Document name	Document format	Document size [MB]
91_01_16_7_4_Final_Well_Report	pdf	47.47
91_01_16_7_4_Geological_Completion_Report_and_Completion_log	pdf	8.64
91_02_16_7_4_Drilling_And_Evaluation_Program	pdf	5.73
91_02_16_7_4_End_of_well_Report_Gearhart_Geodata_Services	pdf	33.12
91_03_16_7_4_Geochemical_Analysis_And_Interpretation	pdf	0.74
91_04_16_7_4_Core_measurements	pdf	2.19
91_04_16_7_4_Hydrocarbon_Source_Analysis	pdf	4.05
91_04_16_7_4_Palontological_Report	pdf	3.16
91_05_16_7_4_DST_1_PVT_Study_Report	pdf	6.10
91_05_16_7_4_DST_2_PVT_Study_Report	pdf	5.90





91 05 16 7 4 Pressure Test Data Summary	pdf	8.40
91 05 16 7 4 Pressure Test Data Summary 2	pdf	13.03
91 05 16 7 4 Results Of Drillstem Tests	pdf	12.57
91 05 16 7 4 Test Report Glomar Biscay 2	pdf	15.46

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2590	2597	16.7
2.0	2525	2535	16.7

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

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	199	385110	0.750	0.790	1938
2.0	253	472890	0.740	0.800	1871

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CALI	165	1156
CBL VDL	2100	2707
CDL CNL	1278	2779
CDM	1700	2779
CDM AP	1700	2779
DLL MLL	2500	2779
FMT	2523	2743
IEL BHC AC GR	165	2778
TEMP	110	1840
VELOCITY	165	2778



**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
SURF.COND.	20	458.0	26	473.0	1.62	LOT
INTERM.	13 3/8	1277.4	17 1/2	1293.0	1.80	LOT
INTERM.	9 5/8	2271.0	12 1/4	2286.0	1.87	LOT
LINER	7	2776.0	8 1/2	2781.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
166	1.04			seawater	
465	1.06			seawater	
1125	1.11			seawater	
1308	1.11			seawa/gel	
2051	1.25			seawa/gel	
2286	1.25			seawa/gel	
2607	1.40			seawa/gel	
2781	1.30			seawa/gel	

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]
91 Formation pressure (Formasjonstrykk)	pdf	0.22

