

**General information**

Wellbore name	15/9-4
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	SLEIPNER VEST
Discovery	15/6-3 Sleipner Vest
Well name	15/9-4
Seismic location	Line 610-163 .SP 355
Production licence	046
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	213-L
Drilling facility	ROSS RIG (1)
Drilling days	72
Entered date	04.04.1979
Completed date	14.06.1979
Release date	14.06.1981
Publication date	08.04.2015
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	NO
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	HUGIN FM
Kelly bushing elevation [m]	25.0
Water depth [m]	102.0
Total depth (MD) [m RKB]	3716.0
Final vertical depth (TVD) [m RKB]	3716.0
Maximum inclination [°]	1.9
Bottom hole temperature [°C]	112
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SKAGERRAK FM
Geodetic datum	ED50
NS degrees	58° 24' 0.26" N
EW degrees	1° 47' 6.93" E
NS UTM [m]	6474041.91
EW UTM [m]	428999.05



UTM zone	31
NPDID wellbore	325

Wellbore history

General

Well 15/9-4 was drilled on in the southeastern part of the Sleipner Vest area in the Viking Graben of the North Sea. Previously four wells had been drilled on the Sleipner Alpha structure in the north. Two of these showed significant gas-condensate accumulations (15/6-3 and 15/9-1) in the middle Jurassic while in the western part of the Alpha structure the sand had shaled out (15/9-3). In the northeast, the sand was penetrated below the hydrocarbon/water contact (15/6-5). The first well drilled on the Beta prospect (15/9-2) showed a significant gas-condensate column in the middle Jurassic sand. The primary objective for well 15/9-4 was to test possible hydrocarbons in Middle Jurassic sandstones in the southeast extending Delta structure.

Operations and results

Well 15/9-4 was spudded with the semi-submersible installation Ross Rig on 4 April 1979 and drilled to TD at 3716 m in the Triassic Skagerrak Formation. Very few problems were encountered during drilling of this well, with the exception of lost circulation in the 26" interval. This problem was solved by pumping cement into the formation. The main problem arose only after drilling the 8 1/2" interval. The 7" liner was run and cemented successfully. When pressure was applied in order to test the liner lap, the 9 5/8" casing burst. The well was drilled with spud mud down to 415 m and with gel/lignosulphonate mud from 402 m to TD.

Top of the Middle Jurassic Vestland Group, Hugin Formation was penetrated at 3441 m. The section contained sandstones with good reservoir properties interbedded with some thin shale beds. The sandstones were hydrocarbon bearing with a gas-water contact at ca 3570 m, 7 m into the Sleipner Formation. Weak oil shows were described throughout the hydrocarbon-bearing reservoir down to 3582 m. Shows were not described in any other section of the well. The Triassic Skagerrak Formation was encountered at 3629 m with some small water bearing sand intervals.

Nine cores were cut in the interval 3457 to 3594.8 m in the Hugin and Sleipner formations. The core-log depth shift is reported as -2.5 m for all cores. Overall recovery was 132.1 m core (98.2%). An RFT fluid sample was taken at 3481 m. It contained gas, condensate, mud and water.

The well was permanently abandoned on 14 June 1979 as a gas/condensate appraisal well.

Testing

The well was not production tested, due to technical problems.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
180.00	3704.00



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	3457.0	3475.2	[m]
2	3457.3	3493.1	[m]
3	3493.1	3510.9	[m]
4	3510.9	3528.8	[m]
5	3528.9	3544.2	[m]
6	3544.2	3556.0	[m]
7	3557.0	3566.7	[m]
8	3569.0	3584.8	[m]
9	3587.0	3594.8	[m]

Total core sample length [m]	150.1
Cores available for sampling?	YES

Core photos



3457-3459m



3459-3462m



3462-3465m



3465-3467m



3467-3470m



3470-3473m



3473-3475m



3475-3478m



3478-3480m



3480-3483m



3483-3486m



3486-3488m



3488-3491m



3491-3493m



3493-3495m



3495-3498m



3498-3501m



3501-3503m



3503-3506m



3506-3509m



3510-3513m



3513-3516m



3516-3519m



3519-3521m



3521-3524m



3524-3527m



3528-3531m



3531-3534m



3534-3537m



3539-3542m



3542-3544m



3537-3539m



3544-3546m



3546-3549m



3549-3552m



3552-3555m



3555-3556m



3557-3559m



3559-3561m



3561-3564m



3564-3566m



3566-3567m



3569-3571m



3573-3576m



3576-3578m



3578-3581m



3581-3583m



3583-3584m



3587-3589m



3589-3591m



3591-3594m



3594-3595m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
2420.0	[m]	DC	RRI
2435.0	[m]	DC	RRI
2450.0	[m]	DC	RRI
2465.0	[m]	DC	RRI
2480.0	[m]	DC	RRI
2498.0	[m]	DC	RRI
2510.0	[m]	DC	RRI
2522.0	[m]	DC	RRI
2540.0	[m]	DC	RRI
2555.0	[m]	DC	RRI
2573.0	[m]	DC	RRI
2588.0	[m]	DC	RRI
2600.0	[m]	DC	RRI
2615.0	[m]	DC	RRI
2624.0	[m]	DC	RRI
2645.0	[m]	DC	RRI
2654.0	[m]	DC	RRI
2663.0	[m]	DC	RRI
2675.0	[m]	DC	RRI
2684.0	[m]	DC	RRI
2693.0	[m]	DC	RRI
2726.0	[m]	DC	RRI



2750.0 [m]	DC	RRI
2768.0 [m]	DC	RRI
2771.0 [m]	DC	RRI
3248.0 [m]	DC	
3278.0 [m]	DC	
3308.0 [m]	DC	
3338.0 [m]	DC	
3368.0 [m]	DC	
3398.0 [m]	DC	
3428.0 [m]	DC	
3430.0 [m]	SWC	
3433.0 [m]	SWC	
3440.0 [m]	SWC	
3458.0 [m]	DC	
3472.0 [m]	C	
3477.0 [m]	C	
3480.0 [m]	C	
3481.0 [m]	C	
3491.5 [m]	C	
3493.0 [m]	C	
3494.0 [m]	DC	
3495.0 [m]	C	
3506.0 [m]	C	
3524.0 [m]	DC	
3531.0 [m]	C	
3531.6 [m]	C	
3532.0 [m]	C	
3545.6 [m]	C	
3547.0 [m]	C	
3555.0 [m]	C	
3562.5 [m]	C	
3566.6 [m]	C	
3570.0 [m]	C	
3583.0 [m]	C	
3584.0 [m]	C	
3584.0 [m]	DC	
3588.0 [m]	C	
3591.0 [m]	C	
3593.0 [m]	C	
3594.0 [m]	C	



3599.0	[m]	SWC	
3599.0	[m]	SWC	
3603.0	[m]	SWC	
3606.0	[m]	SWC	
3614.0	[m]	DC	
3644.0	[m]	DC	
3653.0	[m]	SWC	
3674.0	[m]	DC	
3685.0	[m]	SWC	
3698.0	[m]	SWC	
3701.0	[m]	DC	
3703.0	[m]	SWC	

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
127	NORDLAND GP
847	UTSIRA FM
1350	HORDALAND GP
2172	FRIGG FM
2307	ROGALAND GP
2307	BALDER FM
2372	SELE FM
2431	LISTA FM
2486	HEIMDAL FM
2768	VÅLE FM
2778	SHETLAND GP
2778	EKOFISK FM
2792	TOR FM
2887	HOD FM
3112	BLODØKS FM
3162	HIDRA FM
3192	CROMER KNOLL GP
3192	RØDBY FM
3274	VIKING GP
3274	DRAUPNE FM
3421	HEATHER FM
3441	VESTLAND GP
3441	HUGIN FM



3563	SLEIPNER FM
3629	SKAGERRAK FM

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

Document name	Document format	Document size [MB]
325 01 WDSS General Information	pdf	0.11
325 02 WDSS completion log	pdf	0.25

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

Document name	Document format	Document size [MB]
325 15 9 4 Completion report and log	pdf	26.48

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL	150	1399
CBL VDL	1359	3664
DLL MSFL	3202	3711
FDC CNL CAL GR	400	3711
HDT	3202	3711
ISF SON GR SP	411	3709
RFT	3203	0
VELOCITY	620	3705

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	166.0	0.00	LOT
SURF.COND.	20	402.0	26	415.0	1.63	LOT
INTERM.	13 3/8	1403.0	17 1/2	1420.0	1.79	LOT
INTERM.	9 5/8	3206.0	12 1/4	3220.0	0.00	LOT
LINER	7	3710.0	8 1/2	3726.0	0.00	LOT



**Drilling mud**

Depth MD [m]	Mud weight [g/cm ³]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
832	1.12	42.0		waterbased	
1376	1.20	41.0		waterbased	
1420	1.30	37.0		waterbased	
1867	1.35	47.0		waterbased	
3473	1.40	53.0		waterbased	
3691	1.38	44.0		waterbased	