



Generell informasjon

Brønnbane navn	15/9-9
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	SLEIPNER ØST
Funn	15/9-9 Sleipner Øst
Brønn navn	15/9-9
Seismisk lokalisering	line no 510 - 157 SP: 160
Utvinningstillatelse	046
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	285-L
Boreinnretning	NORDRAUG
Boredager	72
Borestart	04.05.1981
Boreslutt	14.07.1981
Frigitt dato	14.07.1983
Publiseringsdato	24.09.2015
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	GAS/CONDENSATE
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	PALEOCENE
1. nivå med hydrokarboner, formasjon.	HEIMDAL FM
2. nivå med hydrokarboner, alder	PALEOCENE
2. nivå med hydrokarboner, formasjon	TY FM
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	83.0
Totalt målt dybde (MD) [m RKB]	3044.0
Maks inklinasjon [°]	2.3
Temperatur ved bunn av brønnbanen [°C]	79
Eldste penetrerte alder	EARLY PERMIAN
Eldste penetrerte formasjon	ROTLIEGEND GP
Geodetisk datum	ED50



NS grader	58° 20' 47.81" N
ØV grader	1° 53' 24.98" E
NS UTM [m]	6467984.08
ØV UTM [m]	435038.52
UTM sone	31
NPDID for brønnbanen	328

Brønnhistorie

**General**

Well 15/9-9, was drilled on the Sleipner Terrace in the North Sea. The primary objective was to test possible hydrocarbons in Jurassic sandstones on the 15/9-Gamma structure and to get more information about the sand distribution in the area.

Operations and results

Wildcat well 15/9-9 was spudded with the semi-submersible installation Nordraug on 4 May 1981 and drilled to TD at 3044 m in the Early-Middle Permian Rotliegendes Group. No significant problems were experienced in operation, logging or testing of the well. The well was drilled with seawater and pre-hydrated gel down to 501 m, with gel/lignosulphonate from 501 to 1155 m, with gypsum/polymer mud from 1155 m to 2540 m, and with gel/lignosulphonate from 2540 m to TD.

The primary objective, the Jurassic, was thinner than expected and consisted of Late Jurassic Viking Group shales only. The well, however, proved gas and condensate in the Heimdal Formation. The Heimdal Formation was reached at 2322 m. It consisted of sand of fairly good reservoir properties interbedded with some thin shale beds. The whole sand interval was hydrocarbon bearing and no water contact was located. In addition, the well proved residual hydrocarbons over the interval 2648 to 2738 m on cores from the Triassic Skagerrak Formation.

Seven cores were cut. The interval 2648 to 2756 m was cored in six cores with 98 - 100% recovery. A seventh core was cut from 3032 to 3043.5 m with 96% recovery at TD. RFT segregated samples were taken at 2323 m (condensate and mud filtrate) and 2648 m (water and mud filtrate, no gas or condensate). Repeated attempts to sample in the interval 2401 to 2414 all failed due to plugging of probe by unconsolidated sand.

The well was permanently abandoned on 14 July as a gas/condensate discovery.

Testing

Three drill stem tests were performed.

DST 1 tested the interval 2414 to 2421 m. This test gave no flow to surface and it was aborted due to malfunctioning downhole valves. The maximum downhole temperature measured by the gauges was 85.6 °C

DST 2 tested the interval 2386 to 2392 m. This test produced 286 Sm³ condensate and 586200 Sm³ gas /day through a 1.0" choke (max flow). No H₂S and only traces of CO₂ was measured. The GOR was 2050 Sm³/Sm³, the condensate gravity was 57.7 °API and the gas gravity was 0.734. The bottom hole temperature measured by the Flopetrol gauge was 87.8 °C.

DST 3 tested the interval 2323 to 2333 m. This test produced 272 Sm³ condensate and 587000 Sm³ gas /day through a 1.0" choke (max flow). No H₂S and only traces of CO₂ was measured. The GOR was 2160 Sm³/Sm³, the condensate gravity was 60.7 °API and the gas gravity was 0.740. The maximum down hole temperature measured by the gauges was 93.9 °C.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
160.00	3040.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	2648.0	2665.7	[m]
2	2666.0	2684.0	[m]
3	2684.0	2701.9	[m]
4	2702.0	2719.9	[m]
5	2720.0	2738.4	[m]
6	2738.4	2755.6	[m]
7	3032.0	3043.1	[m]

Total kjerneprøve lengde [m]	118.1
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



2648-2651m



2651-2654m



2654-2657m



2657-2660m



2660-2663m



2663-2665m



2665-2669m



2669-2672m



2672-2675m



2675-2678m



2678-2681m



2681-2684m



2684-2687m



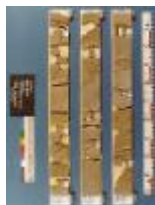
2687-2690m



2690-2693m



2693-2696m



2696-2699m



2699-2701m



2702-2705m



2705-2708m



2708-2711m



2711-2714m



2714-2717m



2717-2719m



2720-2723m



2723-2726m



2726-2729m



2729-2732m



2732-2735m



2735-2738m



2738-2738m



2738-2741m



2741-2744m



2744-2747m



2747-2750m



2750-2753m



2753-2755m



3032-3035m



3035-3038m



3038-3041m



3041-3043m



Palynologiske preparater i Sjøkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
2105.0	[m]	DC	
2130.0	[m]	DC	
2160.0	[m]	DC	
2191.0	[m]	DC	
2221.0	[m]	DC	
2251.0	[m]	DC	
2281.0	[m]	DC	
2311.0	[m]	DC	
2341.0	[m]	DC	
2371.0	[m]	DC	
2401.0	[m]	DC	
2431.0	[m]	DC	
2452.0	[m]	DC	
2482.0	[m]	DC	
2512.0	[m]	DC	
2542.0	[m]	DC	
2551.0	[m]	DC	
2572.0	[m]	DC	
2602.0	[m]	DC	
2605.0	[m]	DC	
2605.0	[m]	DC	
2611.0	[m]	DC	
2623.0	[m]	DC	
2623.0	[m]	DC	
2626.0	[m]	DC	
2626.0	[m]	DC	
2629.0	[m]	DC	
2632.0	[m]	DC	
2635.0	[m]	DC	
2648.2	[m]	C	STATOIL
2650.5	[m]	C	STATOIL
2650.7	[m]	C	STATOIL
2650.9	[m]	C	
2655.1	[m]	C	STATOIL
2659.7	[m]	C	STATOI
2667.0	[m]	C	



2667.4	[m]	C	STATOIL
2668.4	[m]	C	STATOI
2668.7	[m]	C	STATOI
2686.0	[m]	C	STATOI
2686.0	[m]	C	
2691.8	[m]	C	STATOIL
2701.8	[m]	C	STATOIL
2703.7	[m]	C	
2704.7	[m]	C	STATOIL
2705.6	[m]	C	STATOI
2708.5	[m]	C	STATOI
2715.3	[m]	C	STATOI
2715.7	[m]	C	STATOI
2716.6	[m]	C	STATOI
2716.7	[m]	C	STATOI
2717.4	[m]	C	STATOI
2717.5	[m]	C	STATOI
2725.6	[m]	C	
2730.5	[m]	C	STATOIL
2736.5	[m]	C	STATOI
2737.6	[m]	C	STATOI
2740.1	[m]	C	
2744.5	[m]	C	STATOIL
2744.6	[m]	C	STATOI
2763.6	[m]	C	STATOI
2975.7	[m]	C	STATOI
3033.0	[m]	C	

Oljeprøver i Sökkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	TEST2	2386.00	2392.00		02.07.1981 - 05:00	YES
DST	TEST3	2323.00	2333.00		06.07.1981 - 00:00	YES

Litostratigrafi



Topp Dyb [mMD RKB]	Litostrat. enhet
108	NORDLAND GP
108	UNDIFFERENTIATED
844	UTSIRA FM
1092	HORDALAND GP
1092	UNDIFFERENTIATED
2125	ROGALAND GP
2125	BALDER FM
2168	SELE FM
2255	LISTA FM
2322	HEIMDAL FM
2392	MAUREEN FM
2425	SHETLAND GP
2425	EKOFISK FM
2452	TOR FM
2524	HOD FM
2571	BLODØKS FM
2590	HIDRA FM
2597	CROMER KNOLL GP
2597	RØDBY FM
2606	SOLA FM
2613	ÅSGARD FM
2625	VIKING GP
2625	DRAUPNE FM
2627	HEATHER FM
2642	HEGRE GP
2642	SKAGERRAK FM
2776	SMITH BANK FM
2969	ZECHSTEIN GP
2969	UNDIFFERENTIATED
3011	KUPFERSCHIEFER FM
3014	ROTLIEGEND GP
3014	NO FORMAL NAME

Dokumenter - eldre Søkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
328_01_WDSS_General_Information	pdf	0.10





328 02 WDSS completion log	pdf	0.22
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Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
328 15 9 9 COMPLETION LOG	pdf	1.85
328 15 9 9 COMPLETION REPORT	pdf	20.29

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	2414	2421	0.0
2.0	2386	2392	25.4
3.0	2323	2332	25.4

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0				
3.0				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0					
2.0	295	580000	0.740	0.740	
3.0	271	590000	0.740	0.740	

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL GR	388	2526
CST	2579	3028
CYBERDIP ADT	1141	3043
DLL MSFL GR	2300	2539





FDC CNL GR	487	3043
ISF SON GR	81	3043
RFT	2322	3043
VELOCITY	700	3040

Foringsrør og formasjonsstyrketester

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm3]	Type formasjonstest
CONDUCTOR	30	158.0	36	159.0	0.00	LOT
SURF.COND.	20	487.0	26	501.0	1.78	LOT
INTERM.	13 3/8	1142.0	17 1/2	1155.0	1.79	LOT
INTERM.	9 5/8	2527.0	12 1/4	2540.0	1.82	LOT
OPEN HOLE		3044.0	8 1/2	3044.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
390	1.06			waterbased	
960	1.14			waterbased	
1410	1.13			waterbased	
2430	1.20			waterbased	
2530	1.29			waterbased	
2535	1.50			waterbased	

Tynnslip i Sokkeldirektoratet

Dybde	Enhet
3032.56	[m]
3035.03	[m]
3036.03	[m]
3041.02	[m]

Trykkplott





Porertrykksdataene kommer fra logging i brønnen hvis ingen annen kilde er oppgitt. I noen brønner der trykk ikke er logget, er det brukt informasjon fra formasjonstester eller brønnspar. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
328 Formation pressure (Formasjonstrykk)	pdf	0.27

