



Generell informasjon

Brønnbane navn	33/9-14
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	STATFJORD NORD
Funn	33/9-8 Statfjord Nord
Brønn navn	33/9-14
Seismisk lokalisering	E 86 - 457 SP. 716
Utvinningstillatelse	037
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	571-L
Boreinnretning	DEEPSEA BERGEN
Boredager	53
Borestart	17.02.1988
Boreslutt	09.04.1988
Frigitt dato	09.04.1990
Publiseringsdato	10.05.2015
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	DRAUPNE FM
Avstand, boredekk - midlere havflate [m]	23.0
Vanndybde ved midlere havflate [m]	248.0
Totalt målt dybde (MD) [m RKB]	2982.0
Totalt vertikalt dybde (TVD) [m RKB]	2979.0
Maks inklinasjon [°]	6.1
Temperatur ved bunn av brønnbanen [°C]	103
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	DRAKE FM
Geodetisk datum	ED50
NS grader	61° 26' 0.26" N



ØV grader	1° 54' 4.48" E
NS UTM [m]	6811719.66
ØV UTM [m]	441383.29
UTM sone	31
NPDID for brønnbanen	1226

Brønnhistorie

**General**

Well 33/9-14 was drilled on the Statfjord Nord Field on Tampen Spur in the North Sea. The primary objective of the well was to verify the lateral and vertical distribution of sand within a thick Volgian sequence and to prove oil below 2690 m MSL in this sequence (deepest oil in Volgian, well 33/9-8). The Brent Group was a secondary target.

Operations and results

Appraisal well 33/9-14 was spudded with the semi-submersible installation Deepsea Bergen and drilled to TD at 2982 m in the Early Jurassic Drake Formation. There were signs of shallow gas from 408 409 m, but the gas bearing sands created no problems. No significant problem was encountered in the operations. The well was drilled with seawater/gel down to 414 m, with gypsum/polymer mud from 414 m to 2670 m, and with gel/lignosulphonate mud from 2670 m to TD.

The reservoir (interpreted as Kimmeridgian age Intra Draupne Formation Sandstone) came in as prognosed at 2674 m. The oil/water contact was taken from the logs to be at 2747 m, while pressure gradients suggest the contact could be five meter higher up. Intermittent weak shows were described down to 2800 m, else no shows were described in the well. The reservoir properties were very good with porosities up to 30 %. The Brent Group, Ness Formation came in at 2777 m. It was water wet.

Six cores were cut in the Intra Draupne Formation Sandstones and the Brent Group in the interval 2680 to 2879 m. The recovery was generally good except for core 3, for which only 0.5 m was recovered. The core-log depth shift was 3.0 to -3.5 m for all cores. FMT fluid samples were taken at 2757 m and at 2798.4 m.

The well was permanently abandoned on 9 April 1988 as an oil appraisal well.

Testing

Two DST tests were performed in the well.

DST 1 tested the interval 2746.8 - 2759.8 m. It produced 1400 m³ water and 8500 Sm³ gas /day through a 15.9 mm choke. Water production declined to 1287 m³/day at the end of the test. At the end of the test 5%, oil was produced with the water. The DST reservoir temperature was 96 °C.

DST 2.1 tested the interval 2718 - 2732 m. It produced 1370 Sm³ oil and 74670 Sm³ gas /day through a 14.3 mm choke. The oil production declined to 1310 Sm³/day at the end of the test. The GOR varied accordingly from 55 to 57 Sm³/Sm³, while oil density and gas gravity is reported as 0.837 g/cm³ and 0.704 (air = 1), respectively. The DST reservoir temperature was 95 °C.

DST 2.2 teste the interval 2718 - 2738 m + 2675 - 2705 m. It produced 1416 Sm³ oil and 58060 Sm³ gas /day through a 14.3 mm choke. The GOR was 41 Sm³/Sm³, the oil density was 0.837 g/cm³, and the gas gravity was 0.703 (air = 1). The DST reservoir temperature was 95 °C.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
420.00	2981.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	2680.0	2707.7	[m]
2	2707.5	2744.1	[m]
3	2744.0	2744.1	[m]
4	2782.0	2810.7	[m]
5	2810.7	2838.5	[m]
6	2842.0	2879.0	[m]

Total kjerneprøve lengde [m]	157.9
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



2680-2685m



2685-2690m



2690-2695m



2695-2700m



2700-2705m



2705-2707m



2707-2712m



2712-2717m



2717-2722m



2722-2727m



2727-2732m



2732-2737m



2737-2742m



2742-2744m



2744-2744m



2782-2787m



2787-2792m



2792-2797m



2797-2802m



2802-2807m



2807-2810m



2810-2815m



2815-2810m



2820-2825m



2825-2830m



2830-2835m



2835-2838m



2842-2847m



2847-2852m



2852-2857m



2857-2862m



2862-2867m



2867-2872m



2872-2877m



2877-2879m

Palynologiske preparater i Sjøkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
2680.6	[m]	C	OD
2686.3	[m]	C	OD
2689.7	[m]	C	OD
2691.2	[m]	C	OD
2694.5	[m]	C	OD
2698.6	[m]	C	OD
2707.5	[m]	C	OD
2708.1	[m]	C	OD
2713.5	[m]	C	OD



2719.3	[m]	C	OD
2722.7	[m]	C	OD
2723.4	[m]	C	OD
2724.8	[m]	C	OD
2725.9	[m]	C	OD
2728.3	[m]	C	OD
2732.3	[m]	C	OD
2733.5	[m]	C	OD
2738.5	[m]	C	OD
2741.1	[m]	C	OD
2743.0	[m]	C	OD
2782.1	[m]	C	OD
2787.9	[m]	C	OD
2792.5	[m]	C	OD
2796.5	[m]	C	OD
2800.8	[m]	C	OD
2818.3	[m]	C	OD
2842.8	[m]	C	OD
2847.3	[m]	C	OD
2850.2	[m]	C	OD
2871.7	[m]	C	OD

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	TEST1	2746.80	2759.80	OIL	23.03.1988 - 00:00	YES
DST	TEST2,1	2718.00	2732.00	OIL	28.03.1988 - 00:00	YES
DST	TEST2,2	2675.00	2705.00	OIL	31.03.1988 - 14:30	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
271	NORDLAND GP
947	UTSIRA FM
1105	HORDALAND GP



1659	ROGALAND GP
1659	BALDER FM
1735	SELE FM
1890	SHETLAND GP
2669	CROMER KNOLL GP
2674	VIKING GP
2674	DRAUPNE FM
2760	HEATHER FM
2778	BRENT GP
2778	NESS FM
2792	ETIVE FM
2836	RANNOCH FM
2947	BROOM FM
2949	DUNLIN GP
2949	DRAKE FM

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
1226_01_WDSS_General_Information	pdf	0.22
1226_02_WDSS_completion_log	pdf	0.21

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
1226_33_9_14_Completion_report_and_log	pdf	20.97
1226_33_9_14_COMPLETION_LOG	pdf	2.64
1226_33_9_14_COMPLETION_REPORT	pdf	20.97

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	2745	2758	16.0
2.0	2718	2732	12.7
2.1	2718	2732	12.7





Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningsstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0		14.000		
2.1				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0		8000		0.780	
2.0	1350	75000	0.830	0.720	55
2.1	1164	43000	0.837	0.703	37

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBLV GR	268	2927
CDL CN SL GR	2649	2975
DIFL ACL GR CAL	2649	2975
DIFL BHC GR CAL	1278	2252
DIPLOG	2649	2975
DLL MLL GR	2665	2800
FMT GR	2675	2865
FMT GR	2798	2798
MWD - EWR GR	2666	2879
MWD - SN GR	336	2682
MWD - SN GR	2879	2981
SWC	2740	2966
VELOCITY	1000	2960

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	330.0	36	331.0	0.00	LOT
INTERM.	20	404.0	26	414.0	1.29	LOT
INTERM.	13 3/8	1279.0	17 1/2	1292.0	1.76	LOT
INTERM.	9 5/8	2654.0	12 1/4	2670.0	1.90	LOT



LINER	7	2978.0	8 1/2	2982.0	0.00	LOT
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Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	flytegrense [Pa]	Type slam	Dato, måling
1295	1.23	5.0	3.5	WATER BASED	29.02.1988
1617	1.35	58.0	5.5	WATER BASED	29.02.1988
1710	1.45	27.0	6.5	WATER BASED	29.02.1988
2050	1.55	27.0	6.5	WATER BASED	29.02.1988
2523	1.55	20.0	11.0	WATER BASED	07.03.1988
2670	1.55	25.0	8.0	WATER BASED	08.03.1988
2673	1.58	23.0	4.0	WATER BASED	10.03.1988
2680	1.58	13.0	8.0	WATER BASED	16.03.1988
2680	1.58	13.0	8.0	WATER BASED	17.03.1988

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 brønnspark. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
1226 Formation pressure (Formasjonstrykk)	pdf	0.21

