



Generell informasjon

Brønnbane navn	33/9-12
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	STATFJORD ØST
Funn	33/9-7 Statfjord Øst
Brønn navn	33/9-12
Seismisk lokalisering	E86 - 171 SP. 1381
Utvinningstillatelse	037
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	551-L
Boreinnretning	ROSS ISLE
Boredager	46
Borestart	19.06.1987
Boreslutt	03.08.1987
Frigitt dato	03.08.1989
Publiseringsdato	10.04.2015
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	BRENT GP
Avstand, boredekk - midlere havflate [m]	22.0
Vanndybde ved midlere havflate [m]	148.0
Totalt målt dybde (MD) [m RKB]	2959.0
Totalt vertikalt dybde (TVD) [m RKB]	2958.0
Maks inklinasjon [°]	4.9
Eldste penetrerte alder	LATE TRIASSIC
Eldste penetrerte formasjon	HEGRE GP
Geodetisk datum	ED50
NS grader	61° 19' 12.04" N
ØV grader	1° 59' 36.42" E
NS UTM [m]	6799009.69



ØV UTM [m]	446107.22
UTM sone	31
NPDID for brønnbanen	1069

Brønnhistorie

General

Well 33/9-12 was drilled on the Statfjord Øst Discovery on Tampen Spur in the North Sea. The field was discovered in late 1976 by well 33/9-7, which proved oil in the upper portion of the Brent Group. The well 34/7-5, which was drilled on the northerly segment of the structure, penetrated an oil-bearing Brent section down to the same structural level as seen in well 33/9-7, suggesting communication between the wells. However, neither well was drilled in a location that could demonstrate oil in the major Lower Brent reservoir or allowed a clear definition of the oil water contact. The objective of well 33/9-12 was to test the Lower Brent Group and to establish the oil-water contact.

Operations and results

Appraisal well 33/9-12 was spudded with the semi-submersible installation Ross Isle on 19 June 1987 and drilled to TD at 2959 m in the Triassic Hegre Group. The well was drilled with spud mud down to 360 m, with gypsum/polymer mud from 360 m to 2120 m, and with gel/lignosulphonate mud from 2120 m to TD.

Weak shows in traces of sand was described from 2220 m and down in the Shetland Group. Top Brent Group, Tarbert Formation was penetrated at 2461 m. The Brent Group had a total oil leg of 52.25 metres above the oil-water contact in the Etive formation at 2513.75 m (2491.75 m TVD MSL). Oil shows continued down to 2530 m; below this depth shows became weak and patchy. The Statoil Group was encountered at 2814 m. It was water wet and pressure measurements showed that the Statfjord formation is not in pressure communication with the Brent group.

Three cores were cut in the interval 2467 m to 2566 m in the Brent Group and into the Uppermost Dunlin Group with 95 to 99.7% recovery. The core-log depth shifts for cores 1, 2, and 3 were -2 m, -4 m and -4.5 m, respectively. A segregated FMT fluid sample was taken at 2464 m. The sample recovered oil and gas.

The well was permanently abandoned on 3 August 1987 as an oil appraisal.

Testing

Three drill stem tests were performed in the Brent Group.

DST 1 tested the interval 2526.0 to 2538.0 m in the Upper Rannoch Formation. The test produced 795 m3 water /day through a 12.7 mm choke. The DST reservoir temperature was 91.6 °C.

DST 2 tested the interval 2505.0 to 2508.0 m in the Etive Formation. The test produced 113740 Sm3 gas and 1050 Sm3 oil /day through a 14.1 mm choke. The GOR was 111 Sm3/Sm3, the oil density was 0.846 g/cm3, and the gas gravity was 0.725 (air = 1). The DST reservoir temperature was 91.5 °C. At the end of this test the well started producing water. The water cut was approximately 8 % when the well was shut in.

DST 3 tested the interval 2463.0 to 2489.0 m in the Tarbert Formation. The test produced 153880 Sm3 gas and 1470 Sm3 oil /day through a 19.05 mm choke. The GOR was 105 Sm3/Sm3, the oil density was 0.827 g/cm3, and the gas gravity was 0.712 (air = 1). The DST reservoir temperature was 90.0 °C.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
370.00	2957.00

Borekaks tilgjengelig for prøvetaking?	YES
--	-----

Borekjerter i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	2467.0	2498.5	[m]
2	2499.0	2528.8	[m]
3	2531.0	2565.9	[m]

Total kjerneprøve lengde [m]	96.2
Kjerter tilgjengelig for prøvetaking?	YES

Kjernebilder



2467-2472m



2472-2477m



2477-2482m



2482-2487m



2487-2492m



2492-2497m



2497-2498m



2499-2504m



2504-2509m



2509-2514m





2514-2519m 2519-2524m 2524-2528m 2531-2536m 2536-2541m



2541-2546m



2546-2551m



2551-2556m



2556-2561m



2561-2565m

Palynologiske preparater i Sjøkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
2376.5	[m]	SWC	PALEO
2429.0	[m]	SWC	PALEO
2439.5	[m]	SWC	PALEO
2445.0	[m]	SWC	PALEO
2455.0	[m]	SWC	PALEO
2468.0	[m]	C	OD
2492.7	[m]	C	OD
2570.0	[m]	SWC	PALEO
2596.0	[m]	SWC	PALEO
2605.0	[m]	SWC	PALEO
2790.0	[m]	SWC	PALEO
2848.8	[m]	SWC	PALEO
2870.5	[m]	SWC	PALEO

Oljeprøver i Sjøkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	TEST2	2505.00	2508.00		25.07.1987 - 16:45	YES
DST	TEST3	2463.00	2489.00		29.07.1987 - 01:50	YES

Litostratigrafi



Topp Dyb [mMD RKB]	Litostrat. enhet
170	NORDLAND GP
886	UTSIRA FM
1075	HORDALAND GP
1683	ROGALAND GP
1683	BALDER FM
1715	SELE FM
1865	SHETLAND GP
2446	CROMER KNOLL GP
2452	VIKING GP
2452	DRAUPNE FM
2461	BRENT GP
2461	TARBERT FM
2498	NESS FM
2504	ETIVE FM
2517	RANNOCH FM
2561	DUNLIN GP
2561	DRAKE FM
2609	COOK FM
2667	BURTON FM
2692	AMUNDSEN FM
2814	STATFJORD GP
2936	HEGRE GP

Dokumenter - eldre Søkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
1069_01_WDSS_General_Information	pdf	0.37
1069_02_WDSS_completion_log	pdf	0.25

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
1069_33_9_12_Completion_report_and_log	pdf	33.52





Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	2526	2538	12.7
2.0	2505	2508	12.7
3.0	2463	2489	19.0

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0	34.000	31.000	34.000	91
2.0	34.000	33.000	34.000	91
3.0	32.000	32.000	32.000	90

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0					
2.0	950		0.846	0.735	110
3.0	1470	153880	0.845	0.713	174

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL GR	170	2915
CDL CNL SPL CAL	2101	2954
DIFL ACL GR CBI GR	2102	2953
DIP GR	2102	2953
DLL MLL GR CAL	2400	2700
FMT GR	2464	2914
MWD - GR SN RES	360	2950
VSP	1200	2940

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	232.0	36	232.0	0.00	LOT



SURF.COND.	20	345.0	26	360.0	1.32	LOT
INTERM.	13 3/8	1202.0	17 1/2	1217.0	1.73	LOT
INTERM.	9 5/8	2105.0	12 1/4	2120.0	1.89	LOT
LINER	7	2957.0	8 1/2	2959.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
689	1.20	61.0	5.0	WATER BASED	26.06.1987
1100	1.20	64.0	5.0	WATER BASED	26.06.1987
1217	1.20	22.0	5.5	WATER BASED	29.06.1987
1246	1.20	18.0	5.0	WATER BASED	29.06.1987
1417	1.20	19.0	5.5	WATER BASED	29.06.1987
1519	1.20	21.0	6.0	WATER BASED	30.06.1987
1656	1.30	23.0	6.0	WATER BASED	30.06.1987
1760	1.40	25.0	7.5	WATER BASED	30.06.1987
1780	1.40	25.0	7.5	WATER BASED	01.07.1987
1840	1.45	29.0	5.5	WATER BASED	01.07.1987
2072	1.45	27.0	7.0	WATER BASED	02.07.1987
2120	1.60	35.0	11.0	WATER BASED	06.07.1987
2393	1.60	34.0	5.5	WATER BASED	06.07.1987
2465	1.63	35.0	6.0	WATER BASED	07.07.1987
2566	1.63	35.0	5.2	WATER BASED	13.07.1987
2753	1.63	39.0	5.7	WATER BASED	13.07.1987

Tynnslip i Sökkeldirektoratet

Dybde	Enhet
2565.00	[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 brønnspark. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
1069 Formation pressure (Formasjonstrykk)	pdf	0.22

