



Generell informasjon

Brønnbane navn	34/10-4
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	GULLFAKS
Funn	34/10-1 Gullfaks
Brønn navn	34/10-4
Seismisk lokalisering	709-404 SP 322
Utvinningstillatelse	050
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	222-L
Boreinnretning	ROSS RIG (1)
Boredager	65
Borestart	12.08.1979
Boreslutt	15.10.1979
Frigitt dato	15.10.1981
Publiseringsdato	05.12.2012
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	BRENT GP
2. nivå med hydrokarboner, alder	EOCENE
2. nivå med hydrokarboner, formasjon	NO FORMAL NAME
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	197.0
Totalt målt dybde (MD) [m RKB]	2600.0
Totalt vertikalt dybde (TVD) [m RKB]	2598.0
Temperatur ved bunn av brønnbanen [°C]	77
Eldste penetrerte alder	LATE TRIASSIC
Eldste penetrerte formasjon	LUNDE FM



Geodetisk datum	ED50
NS grader	61° 12' 15.65" N
ØV grader	2° 13' 55.96" E
NS UTM [m]	6785952.41
ØV UTM [m]	458739.12
UTM sone	31
NPDID for brønnbanen	427

Brønnhistorie

**General**

Well 34/10-4 was drilled in the Delta closure in the north-eastern part of block 34/10 in the northern North Sea. The Delta structure consists of several separate fault blocks and 34/10-4 targeted one of these. It was the third well drilled in the Delta closure. Two other separate fault blocks had previously proved oil bearing by well 34/10-1 located to the south, and well 34/10-3 located about 2 km north-west. The primary objective of well 34/10-4 was to test sandstones of Middle Jurassic age. Secondary objectives were sandstones of Early Jurassic age.

Operations and results

Well 34/10-4 was spudded with the semi-submersible installation Ross Rig on 12 August 1979 and drilled to TD at 2600 m in the Late Triassic Lunde Formation. No specific problems were encountered in the operations. The well was drilled with sea water and gel slugs down to 641 m and with sea water, gel, lignite and lignosulphonate in various proportions from 641 m to TD.

A minor hydrocarbon-bearing interval was encountered in the Eocene from 1290 to 1307 m but the type of hydrocarbons could not be determined. The net Eocene "pay" was 8.25 m with average porosity of 34.4% and average water saturation of 38.5%. The main target Brent Group sandstones were encountered at 1816 m and were found oil bearing down to claystone at 1912 m. It contained 81 m of net pay with an average porosity of 33.7% and an average water saturation of 12.5%. The Statfjord Formation (2350 - 2481 m) was water bearing with 61 m of net sand with an average porosity of 23.3%.

The first show was recorded on a well site sample from 1280 m, just above the Eocene pay. It was described with "dead oil, dull fluorescence". Otherwise, oil shows with fluorescence, cut and oil stains were recorded in limestones, claystones, siltstones and marl from 1380 m and more or less continuously down to 1755 m.

Five cores were recovered in the interval from 1826 to 1909 m in the Rannoch and Broom formations of the Brent Group and one core from 2350.5 to 2364.5 m in the Eirikson and Raude members of the Statfjord Formation. An RFT fluid sample was taken at 1827.5 m

The well was permanently abandoned on 15 October 1979 as an oil appraisal well.

Testing

Two drill stem tests were run in the Rannoch Formation.

DST 1A tested the interval 1880 to 1885 m. The well produced 280 Sm³ oil and 24300 Sm³ gas /day through a 20/64" choke. The GOR was 87 Sm³/Sm³ and the oil gravity was 29deg API. The bottom hole maximum temperature was 72.4 deg C.

DST 2 tested the interval 1824 to 1826 m. The well produced 810 Sm³ oil and 67400 Sm³ gas/day through two parallel chokes (20/64" + 32/64"). The GOR was 83 Sm³/Sm³ and the oil gravity was 29deg API. The bottom hole maximum temperature was 71.5 deg C.

No water was produced in the DST's.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
270.00	2600.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1826.0	1844.7	[m]
2	1845.0	1852.4	[m]
3	1857.0	1873.5	[m]
4	1873.5	1891.0	[m]
5	1891.0	1909.0	[m]
6	2350.5	2356.0	[m]

Total kjerneprøve lengde [m]	83.6
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



1826-1828m



1828-1831m



1831-1834m



1834-1836m



1836-1839m



1839-1842m



1842-1844m



1845-1847m



1847-1850m



1850-1852m



1857-1859m



1859-1862m



1862-1865m



1865-1867m



1867-1870m



1870-1873m



1873-1873m



1873-1876m



1876-1878m



1878-1881m



1881-1883m



1884-1886m



1886-1888m



1889-1890m



1891-1892m



1893-1895m



1896-1898m



1899-1901m



1901-1904m



1904-1907m



1907-1909m



2350-2353m



2353-2356m



2356-2357m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
1929.0	[m]	DC	
1953.0	[m]	DC	
1965.0	[m]	DC	



2026.0	[m]	DC	
2044.0	[m]	DC	
2056.0	[m]	DC	
2062.0	[m]	DC	
2068.0	[m]	DC	
2179.0	[m]	DC	
2182.0	[m]	DC	
2188.0	[m]	DC	
2189.0	[m]	DC	
2207.0	[m]	DC	
2350.0	[m]	DC	
2353.0	[m]	DC	
2356.0	[m]	DC	

Oljeprøver i Sökkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST1A	1880.00	1885.00		05.10.1979 - 22:00	YES
DST	DST 2	1824.00	1826.00		12.10.1979 - 00:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
223	NORDLAND GP
950	UTSIRA FM
962	HORDALAND GP
1110	NO FORMAL NAME
1227	NO FORMAL NAME
1273	NO FORMAL NAME
1340	NO FORMAL NAME
1520	ROGALAND GP
1520	BALDER FM
1580	LISTA FM
1690	SHETLAND GP
1690	JORSALFARE FM
1745	KYRRE FM



1816	BRENT GP
1816	RANNOCH FM
1905	BROOM FM
1916	DUNLIN GP
1916	DRAKE FM
2025	COOK FM
2165	BURTON FM
2175	AMUNDSEN FM
2340	STATEFJORD GP
2340	NANSEN FM
2435	EIRIKSSON FM
2458	RAUDE FM
2481	HEGRE GP
2481	LUNDE FM

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
427_GCH_1	pdf	0.89
427_GCH_2	pdf	2.32

Dokumenter - eldre Sökkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
427_01_WDSS_General_Information	pdf	0.12
427_02_WDSS_completion_log	pdf	0.19

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
427_34_10_4_ADT_end_of_well_summary	pdf	19.78
427_34_10_4_ADT_LOG	PDF	0.60
427_34_10_4_ANALYTICAL_REPORT_NO_ABN_238_80	PDF	0.27
427_34_10_4_COMPLETION_REPORT	PDF	9.40
427_34_10_4_COMPUTERIZED_LOG_INTERPRETATION	PDF	0.75





427 34 10 4 CORMORANT	PDF	0.34
427 34 10 4 Data Summary	pdf	41.27
427 34 10 4 ELECTRICAL RESISTIVITY MEASUREMENTS	PDF	0.49
427 34 10 4 EVALUATION OF SPECIAL CORE ANALYSIS DATA	PDF	7.10
427 34 10 4 FINAL REPORT WELL CORE 1_6	PDF	1.08
427 34 10 4 GEOLOGICAL PROGNOSIS & DRILLING PROGRAM	PDF	1.90
427 34 10 4 KORRIGERING AV PETROFYSISK RAPPORT	PDF	0.53
427 34 10 4 PALAEONTOLOGICAL STRATIGRAPHICAL FINAL REPORT	PDF	0.96
427 34 10 4 Palentological study	pdf	1.33
427 34 10 4 PETROGRAPHY AND DIAGENESIS OF THE BRENT SANDSTONES	PDF	9.96
427 34 10 4 PETROPHYSICAL EVALUATION	PDF	0.95
427 34 10 4 PLUG AND ABANDONMENT PROGRAM	PDF	0.07
427 34 10 4 PLUG BACK PROGRAM	PDF	0.04
427 34 10 4 PRESSURE PREDICTION	PDF	2.14
427 34 10 4 PVT STUDY ON A BOTTOM HOLE SAMPLE DST 1A	PDF	1.20
427 34 10 4 QUALITY CONTROL OF ROUTINE CORE ANALYSIS	PDF	0.26
427 34 10 4 Report interpretation of DST 1A & DST 2	pdf	1.87
427 34 10 4 RESERVOIR FLUID STUDY	PDF	0.18
427 34 10 4 RESERVOIR FLUID STUDY DST 2	PDF	0.82
427 34 10 4 SOURCE ROCK ANALYSES	PDF	1.24
427 34 10 4 SPECIAL CORE ANALYSIS	PDF	1.65
427 34 10 4 SPECIAL CORE ANALYSIS STUDY	PDF	4.12
427 34 10 4 Special core description	pdf	1.17
427 34 10 4 SPECIAL STUDY DST 1	PDF	0.51
427 34 10 4 STRATIGRAPHIC LOG	PDF	2.05
427 34 10 4 SUPPLEMENTARY REPORT	PDF	0.20
427 34 10 4 SURVEY REPORT	PDF	1.01
427 34 10 4 TEST PROGRAM	PDF	0.46
427 34 10 4 UPPER PART OF THE WELL TEST STRING ASSEMBLY	PDF	0.12
427 34 10 4 WELL PROGNOSIS	PDF	0.19
427 34 10 4 WELL TEST REPORT PL_050	PDF	2.31





427 34 10 4 KAPILLAER TRYKKS STUDIE	PDF	0.41
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Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	1880	1885	7.9
2.0	1824	1826	14.7

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningsstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				72
2.0				71

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyingde rel. luft	GOR [m3/m3]
1.0	279	24300	0.880		87
2.0	810	67400	0.880		83

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
BHC GR CAL	2490	2795
BOND INDEX QUICK LOOK	1604	1980
CBL GR	450	1980
CEMENT VOLUME COMP	1693	1980
CYBERDIP	1696	2597
CYBERLOOK	1693	2597
DLL MSFL GR	2490	2795
FDC CNL GR CAL	1693	2596
FDC GR CAL	627	1699
HDT	1693	2597
ISF SON	222	2597
SONIC WAVEFORM	1693	1981
VELOCITY	620	2705





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	273.0	36	274.0	0.00	LOT
SURF.COND.	20	627.0	26	641.0	1.52	LOT
INTERM.	13 3/8	1438.0	17 1/2	1450.0	1.67	LOT
INTERM.	9 5/8	1693.0	12 1/4	1704.0	1.98	LOT
LINER	7	1981.0	8 1/2	1985.0	2.05	LOT
OPEN HOLE		2600.0	6	2600.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
639	1.10	34.0		waterbased	
891	1.13	45.0		waterbased	
1104	1.16	50.0		waterbased	
1311	1.29	45.0		waterbased	
1458	1.50	47.0		waterbased	
1750	1.75	56.0		waterbased	
1959	1.75	47.0		waterbased	
2438	1.72	49.0		waterbased	

Tynnslip i Sokkeldirektoratet

Dybde	Enhet
1882.00	[m]
1827.00	[m]
1836.00	[m]
1841.00	[m]
1847.00	[m]
1858.00	[m]
1870.00	[m]
1876.00	[m]
1882.00	[m]
1893.00	[m]
1834.00	[m]
1891.00	[m]

