



Generell informasjon

Brønnbane navn	34/10-21
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	GULLFAKS SØR
Funn	34/10-2 Gullfaks Sør
Brønn navn	34/10-21
Seismisk lokalisering	ST 8134 - 173 SP. 160
Utvinningstillatelse	050
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	426-L
Boreinnretning	DYVI DELTA
Boredager	89
Borestart	26.07.1984
Boreslutt	22.10.1984
Frigitt dato	22.10.1986
Publiseringsdato	02.12.2014
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	GAS
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	TARBERT FM
Avstand, boredekk - midlere havflate [m]	29.0
Vanndybde ved midlere havflate [m]	136.0
Totalt målt dybde (MD) [m RKB]	4005.0
Totalt vertikalt dybde (TVD) [m RKB]	4003.0
Maks inklinasjon [°]	4.7
Temperatur ved bunn av brønnbanen [°C]	110
Eldste penetrerte alder	LATE TRIASSIC
Eldste penetrerte formasjon	STATFJORD GP
Geodetisk datum	ED50
NS grader	61° 7' 33.04" N



ØV grader	2° 8' 54.53" E
NS UTM [m]	6777264.06
ØV UTM [m]	454125.77
UTM sone	31
NPDID for brønnbanen	221

Brønnhistorie

General

Well 34/10-21 was the third well drilled on the Gullfaks South structure in the Tampen Spur area in the northern North Sea. The objective was to test for possible hydrocarbon accumulations and for a possible extension of reserves in the Gullfaks South field. Targets included the Brent, Cook and Statfjord Sandstones and possible sand accumulations in the Early Cretaceous.

Operations and results

Appraisal well 34/10-21 was spudded with the semi-submersible installation Dyvi Delta on 26 July 1984 and drilled to TD at 4005 m in Late Triassic sediments of the Raude Formation. The well was drilled with gel/seawater down to 615 m, with gypsum/CMC/lignosulphonate from 615 m 3196 m, and with gel/lignosulphonate from 3196 m to TD.

No sandstones were encountered in the Early Cretaceous. Hydrocarbon bearing Brent sandstone was encountered at 3287 m, with the hydrocarbon/water contact established at 3333 m+/-3 m. No hydrocarbons were identified in the Cook sandstones. The logs indicated hydrocarbons in the Statfjord Group, but drill stem test gave no flow from these sandstones. No shows were described above the Tarbert reservoir. Below the OWC, shows on sandstone were described down to 3359 m.

Six cores were cut; four from 3289 m to 3383 in the Brent Group and two from 3970 m to 3985.5 in the Raude Formation. Core recoveries were from 90 % to 100 %. RFT fluid samples were taken in the Brent Group oil zone at 3298.5 m, 3317.3 m, and 3325.0 m.

The well was permanently abandoned on 22 October 1984 as a gas appraisal well.

Testing

Two drill stem tests were performed.

DST 1 tested the interval 3905.2 m to 3922.2 m in the Statfjord Group. This test gave no flow.

DST 2 tested the interval 3290.7 - 3312.7 m in the Tarbert Formation. This test produced 130 Sm³ condensate and 837800 Sm³ gas /day through a 14.29 mm choke. The GOR was 6424 SM³/Sm³, the condensate density was 0.80 g/cm³, the gas gravity was 0.65 (air=1). The downhole temperature reading in the test was 119.3 °C.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
228.00	4002.00



Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3289.0	3306.3	[m]
2	3307.0	3331.4	[m]
3	3333.9	3359.0	[m]
4	3361.5	3383.2	[m]
5	3970.0	3973.6	[m]
6	3973.5	3985.4	[m]

Total kjerneprøve lengde [m]	104.0
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



3289-3295m



3295-3301m



3301-3306m



3307-3313m



3313-3319m



3319-3325m



3325-3331m



3331-3331m



3333-3339m



3339-3345m



3345-3351m



3351-3357m



3357-3359m



3361-3367m



3367-3373m



3373-3379m



3379-3383m



3970-3973m



3973-3979m



3979-3985m



3985-3985m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
3045.0	[m]	SWC	GEOCH
3063.0	[m]	SWC	GEOCH
3077.0	[m]	SWC	GEOCH
3089.0	[m]	SWC	GEOCH
3102.0	[m]	DC	GEOCH
3103.0	[m]	SWC	GEOCH
3111.0	[m]	DC	GEOCH
3120.0	[m]	DC	GEOCH
3132.0	[m]	DC	GEOCH
3141.0	[m]	DC	GEOCH
3153.0	[m]	DC	GEOCH
3162.0	[m]	DC	GEOCH
3171.0	[m]	DC	GEOCH
3180.0	[m]	DC	GEOCH
3195.0	[m]	DC	GEOCH
3210.0	[m]	DC	GEOCH
3219.0	[m]	DC	GEOCH
3231.0	[m]	DC	GEOCH
3243.0	[m]	DC	GEOCH
3258.0	[m]	DC	GEOCH
3270.0	[m]	DC	GEOCH
3282.0	[m]	DC	GEOCH
3288.0	[m]	DC	GEOCH



Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	TEST2	3290.00	3312.00	CONDE NSATE	13.10.1984 - 00:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
165	NORDLAND GP
909	UTSIRA FM
1053	HORDALAND GP
1799	ROGALAND GP
1799	BALDER FM
1870	SELE FM
1915	LISTA FM
2014	SHETLAND GP
2014	JORSALFARE FM
2313	KYRRE FM
2900	CROMER KNOLL GP
2900	RØDBY FM
2904	SOLA FM
2911	ÅSGARD FM
2920	VIKING GP
2920	DRAUPNE FM
3047	HEATHER FM
3287	BRENT GP
3287	TARBERT FM
3346	NESS FM
3497	ETIVE FM
3503	RANNOCH FM
3550	DUNLIN GP
3550	DRAKE FM
3632	COOK FM
3763	AMUNDSEN FM
3906	STATFJORD GP



3906	NANSEN FM
3914	EIRIKSSON FM
3930	RAUDE FM

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
221_GCH_1	pdf	0.87
221_GCH_2	pdf	2.69
221_GCH_3	pdf	3.55
221_GCH_4	pdf	3.16
221_GCH_5	pdf	11.90

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
221_01_WDSS_General_Information	pdf	0.24
221_02_WDSS_completion_log	pdf	0.35

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
221_34_10_21_Completion_log	pdf	2.54
221_34_10_21_Completion_Report	pdf	28.56
221_34_10_21_Compositional_Analysis	pdf	0.22
221_34_10_21_Pressure_Survey_Report_run_1	pdf	13.03
221_34_10_21_Pressure_Survey_Report_Run_4	pdf	7.60
221_34_10_21_Routine_core_analyses	pdf	1.65
221_34_10_21_Well_Testing_Report_Gulfaks_South	pdf	29.87
221_34_10_21_Analyse_av_Vannprover	pdf	0.22
221_34_10_21_Well_Testing_Report_Gulfaks_Sor	pdf	4.41

Borestrengtester (DST)





Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3905	3922	0.0
2.0	3290	3313	25.4
2.1	3290	3312	25.4
2.2	3290	3312	25.4

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0	21.000			
2.1		13.000	45.000	
2.2	27.000	14.000	45.000	

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0					
2.0	194	1132000	0.804		5840
2.1	197	1131000	0.804		5732
2.2		1130000	0.800		5700

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL GR	750	3954
CEQL	3035	3954
CET GR	3035	3966
CST GR	2855	3103
DLL MSFL GR	3181	4006
ISF LSS MSFL GR	600	4005
LDL CNL GR	600	4006
MWD	226	600
NGS	3193	3611
RFT GR	3290	3512
RFT GR	3293	3498
SHDT GR	1896	3961
WSS VSP	240	4005



Foringsrør og formasjonsstyrketester

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm ³]	Type formasjonstest
CONDUCTOR	30	226.0	36	228.0	0.00	LOT
SURF.COND.	20	600.0	26	745.0	1.81	LOT
INTERM.	13 3/8	1896.0	17 1/2	1990.0	1.56	LOT
INTERM.	9 5/8	3181.0	12 1/4	3196.0	1.99	LOT
LINER	7	4000.0	8 1/2	4005.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm ³]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
228	1.03			WATER BASED	30.07.1984
495	1.06	8.0	20.0	WATER BASED	30.07.1984
629	1.22	7.0	20.0	WATER BASED	31.07.1984
745	1.10	5.0	8.0	WATER BASED	03.08.1984
1237	1.11	5.0	7.1	WATER BASED	07.08.1984
1755	1.10	6.8	6.8	WATER BASED	07.08.1984
1760	1.17	6.8	7.7	WATER BASED	07.08.1984
1915	1.17	8.0	4.8	WATER BASED	07.08.1984
1915	1.20	10.0	5.7	WATER BASED	07.08.1984
1915	1.22	10.0	7.7	WATER BASED	07.08.1984
1915	1.20	10.0	5.7	WATER BASED	07.08.1984
1915	1.22	10.0	7.7	WATER BASED	07.08.1984
1918	1.29	9.0	4.2	WATER BASED	10.08.1984
1990	1.29	13.0	4.8	WATER BASED	14.08.1984
2134	1.28	14.0	4.9	WATER BASED	14.08.1984
2851	1.26	15.0	5.8	WATER BASED	20.08.1984
2948	1.27	15.0	5.0	WATER BASED	20.08.1984
2949	1.33	14.0	7.7	WATER BASED	20.08.1984
3027	1.33	17.0	6.6	WATER BASED	20.08.1984
3046	1.33			WATER BASED	21.08.1984
3047	1.39	16.0	7.3	WATER BASED	21.08.1984
3135	1.39	18.0	7.3	WATER BASED	22.08.1984
3185	1.44	19.0	8.0	WATER BASED	23.08.1984
3196	1.44	18.0	8.0	WATER BASED	24.08.1984



3220	1.44	17.0	7.7	WATER BASED	28.08.1984
3361	1.44	14.0	6.0	WATER BASED	03.09.1984
3586	1.44	16.0	7.9	WATER BASED	06.09.1984
3612	1.44	15.0	6.9	WATER BASED	10.09.1984
3700	1.44	15.0	6.0	WATER BASED	11.09.1984
3760	1.44	17.0	5.2	WATER BASED	13.09.1984
3846	1.44	17.0	5.0	WATER BASED	17.09.1984
3962	1.44	16.0	5.0	WATER BASED	19.09.1984

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]
221 Formation pressure (Formasjonstrykk)	pdf	0.22

