



Generell informasjon

Brønnbane navn	30/2-3
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	HULDRA
Funn	30/2-1 Huldra
Brønn navn	30/2-3
Seismisk lokalisering	ST 8830-313 & COL. 842
Utvinningstillatelse	051
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	731-L
Boreinnretning	ROSS ISLE
Boredager	117
Borestart	11.06.1992
Boreslutt	05.10.1992
Frigitt dato	05.10.1994
Publiseringsdato	07.01.2015
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	GAS/CONDENSATE
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	TARBERT FM
2. nivå med hydrokarboner, alder	MIDDLE JURASSIC
2. nivå med hydrokarboner, formasjon	NESS FM
Avstand, boredekk - midlere havflate [m]	22.0
Vanndybde ved midlere havflate [m]	123.0
Totalt målt dybde (MD) [m RKB]	4325.0
Maks inklinasjon [°]	7.5
Temperatur ved bunn av brønnbanen [°C]	160
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	EIRIKSSON FM
Geodetisk datum	ED50



NS grader	60° 50' 49.05" N
ØV grader	2° 39' 19.68" E
NS UTM [m]	6745949.82
ØV UTM [m]	481275.16
UTM sone	31
NPDID for brønnbanen	1970

Brønnhistorie

**General**

Well 30/2-2 was drilled on the Huldra Field in the North Sea. The objective was to appraise the gas/condensate discovery in the Brent Group and reduce the gas-in-place estimates for the field.

Operations and results

Appraisal well 30/2-2 was spudded with the semi-submersible installation Ross Isle on 11 June 1992 and drilled to TD at 4325 m in the Early Jurassic Eiriksson Formation. A pilot hole was drilled to 520 m to check for shallow gas. No gas was detected. Drilling proceeded without significant problems. Tool sticking was common in the reservoir section during logging runs. The well was drilled with seawater down to 209 m, with gel spud mud from 209 m to 1115 m, with gypsum/polymer mud from 1115 m to 2298 m, and with Ancotherm mud from 2298 m to TD.

Although a well-defined Gas-Water-contact was encountered in 30/2-3 at 3896 m, this was some 75 m shallower than the previously deepest gas-down-to for well 30/2-2. This indicates that the Huldra Field is more complex than previously thought. Good porosity and permeability were encountered in all gas bearing intervals, reducing uncertainties regarding well productivity. There were no shows above Brent reservoir level. Below the GWC weak shows on sandstone in the cores gradually diminished down to 3962 m where shows disappeared altogether.

A total of 178.4 m core was recovered in 17 cores, from 3749 m in the Heather Formation through all of the Brent Group and down to 3985 m at top Drake Formation. The core-to-log depth correction varied between -0.4 to +1.9 m. No wire line fluid samples were taken.

The well was permanently abandoned on 5 October 1992 as a gas/condensate appraisal well.

Testing

Three drill stem tests were performed in the Brent Group.

DST 1 tested the interval 3895 - 3898 m in the Ness Formation. The average production rates towards the end of the Cleanup/ Main Flow period were approximately 43000 Sm³/d of gas, 24 Sm³/d of condensate and 129 Sm³/d of formation water. This proved a GWC in the tested interval. The condensate density was 0.810 g/cm³ and the gas gravity was 0.720 (air =1). The temperature at reference depth 3895 m was 149.0 °C.

DST 2 tested the interval 3874 - 3881 m in the Ness Formation. The average gas and condensate production rates during the Main Flow were 671000 Sm³/d and 319 Sm³/d respectively through a 12.7 mm (32/64") choke size. This gave a GOR close to 2100 Sm³/Sm³ at the prevailing separator conditions. The condensed or dissolved water production was approx. 6-8 m³/d. The condensate density was 0.0.800 g/cm³ and the gas gravity was 0.700 (air =1). DST 2 confirmed very good reservoir properties in the tested interval. The temperature at reference depth 3895 m was 147.5 °C.

DST 3 tested the interval 3794 -3803 m in the Tarbert Formation. The average gas and condensate production rates during the Main Flow were 466800 Sm³/d and 215 Sm³/d respectively through a 12.7 mm (32/64") choke size. This gave a GOR of approx. 2170 Sm³/Sm³ at the prevailing separator conditions. The condensed or dissolved water production was approx. 4-6 m³/d. The condensate density was 0.0.797 g/cm³ and the gas gravity was 0.0.690 (air =1). DST 3 confirmed moderate reservoir properties in the tested interval. The temperature at reference depth 3895 m was 146.0 °C.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1120.00	4323.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3749.0	3755.9	[m]
2	3756.0	3761.1	[m]
3	3792.0	3813.3	[m]
4	3816.0	3829.1	[m]
5	3830.0	3836.3	[m]
6	3836.3	3855.0	[m]
7	3855.1	3867.0	[m]
8	3868.0	3873.9	[m]
9	3857.0	3886.5	[m]
10	3886.5	3897.0	[m]
11	3897.7	3915.0	[m]
12	3915.6	3928.0	[m]
13	3928.1	3932.0	[m]
15	3954.5	3962.0	[m]
16	3962.0	3968.8	[m]
17	3968.8	3986.0	[m]

Total kjerneprøve lengde [m]	194.4
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



3749-3754m



3754-3755m



3756-3761m



3761-3761m



3793-3798m



3798-3803m



3803-3808m



3808-3813m



3813-3813m



3816-3821m



3821-3826m



3826-3829m



3830-3835m



3835-3836m



3836-3841m



3846-3851m



3851-3855m



3855-3860m



3860-3865m



3865-3867m



3865-3873m



3873-3873m



3875-3880m



3880-3885m



3885-3886m



3886-3891m



3891-3896m



3896-3897m



3897-3902m



3902-3907m



3907-3912m



3912-3915m



3915-3920m



3920-3925m



3925-3928m



3928-3932m



3954-3959m



3959-3962m



3962-3967m



3967-3968m



3968-3973m



3973-3978m



3978-3983m



3983-3906m

Palynologiske preparater i Sjøkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
1130.0	[m]	DC	GEOST
1160.0	[m]	DC	GEOST
1190.0	[m]	DC	GEOST
1210.0	[m]	DC	GEOST
1230.0	[m]	DC	GEOST
1300.0	[m]	DC	GEOST
1342.0	[m]	DC	GEOST
1354.0	[m]	DC	GEOST
1420.0	[m]	DC	GEOST
1447.0	[m]	DC	GEOST
1477.0	[m]	DC	GEOST
1492.0	[m]	DC	GEOST
1501.0	[m]	DC	GEOST
1516.0	[m]	DC	GEOST
1528.0	[m]	DC	GEOST
1543.0	[m]	DC	GEOST
1558.0	[m]	DC	GEOST
1564.0	[m]	DC	GEOST
1579.0	[m]	DC	GEOST
1600.0	[m]	DC	GEOST
1645.0	[m]	DC	GEOST
1660.0	[m]	DC	GEOST



1675.0 [m]	DC	GEOST
1702.0 [m]	DC	GEOST
1759.0 [m]	DC	GEOST
1783.0 [m]	DC	GEOST
1804.0 [m]	DC	GEOST
1825.0 [m]	DC	GEOST
1846.0 [m]	DC	GEOST
1858.0 [m]	DC	GEOST
1882.0 [m]	DC	GEOST
2191.0 [m]	DC	GEOST
2257.0 [m]	DC	GEOST
2278.0 [m]	DC	GEOST
2296.0 [m]	DC	GEOST
2320.0 [m]	DC	GEOST
2340.0 [m]	DC	GEOST
2360.0 [m]	DC	GEOST
2380.0 [m]	DC	GEOST
2400.0 [m]	DC	GEOST
2420.0 [m]	DC	GEOST
2440.0 [m]	DC	GEOST
2460.0 [m]	DC	GEOST
2480.0 [m]	DC	GEOST
2500.0 [m]	DC	GEOST
2520.0 [m]	DC	GEOST
2540.0 [m]	DC	GEOST
2560.0 [m]	DC	GEOST
2580.0 [m]	DC	GEOST
2600.0 [m]	DC	GEOST
2620.0 [m]	DC	GEOST
2640.0 [m]	DC	GEOST
2660.0 [m]	DC	GEOST
2680.0 [m]	DC	GEOST
2700.0 [m]	DC	GEOST
2720.0 [m]	DC	GEOST
2740.0 [m]	DC	GEOST
2770.0 [m]	DC	GEOST
2780.0 [m]	DC	GEOST
2800.0 [m]	DC	GEOST
2820.0 [m]	DC	GEOST
2840.0 [m]	DC	GEOST



2860.0	[m]	DC	GEOST
2880.0	[m]	DC	GEOST
2900.0	[m]	DC	GEOST
2920.0	[m]	DC	GEOST
2940.0	[m]	DC	GEOST
2960.0	[m]	DC	GEOST
2980.0	[m]	DC	GEOST
3000.0	[m]	DC	GEOST
3020.0	[m]	DC	GEOST
3040.0	[m]	DC	GEOST
3060.0	[m]	DC	GEOST
3080.0	[m]	DC	GEOST
3100.0	[m]	DC	GEOST
3120.0	[m]	DC	GEOST
3140.0	[m]	DC	GEOST
3160.0	[m]	DC	GEOST
3180.0	[m]	DC	GEOST
3200.0	[m]	DC	GEOST
3220.0	[m]	DC	GEOST
3240.0	[m]	DC	GEOST
3260.0	[m]	DC	GEOST
3280.0	[m]	DC	GEOST
3300.0	[m]	DC	GEOST
3320.0	[m]	DC	GEOST
3340.0	[m]	DC	GEOST
3360.0	[m]	DC	GEOST
3380.0	[m]	DC	GEOST
3400.0	[m]	DC	GEOST
3420.0	[m]	DC	GEOST
3520.0	[m]	DC	GEOST
3540.0	[m]	DC	GEOST
3560.0	[m]	DC	GEOST
3580.0	[m]	DC	GEOST
3600.0	[m]	DC	GEOST
3618.0	[m]	DC	GEOST
3624.0	[m]	DC	GEOST
3627.0	[m]	DC	GEOST
3636.0	[m]	DC	GEOST
3645.0	[m]	DC	GEOST
3654.0	[m]	DC	GEOST



3672.0 [m]	DC	GEOST
3681.0 [m]	DC	GEOST
3690.0 [m]	DC	GEOST
3699.0 [m]	DC	GEOST
3708.0 [m]	DC	GEOST
3708.5 [m]	SWC	STATO
3717.0 [m]	SWC	STATO
3717.0 [m]	DC	GEOST
3728.0 [m]	SWC	STATO
3729.0 [m]	DC	GEOST
3735.0 [m]	SWC	STATO
3738.0 [m]	DC	GEOST
3747.0 [m]	DC	GEOST
3749.5 [m]	C	GEOST
3758.5 [m]	C	GEOST
3765.0 [m]	DC	GEOST
3774.0 [m]	DC	GEOST
3783.0 [m]	DC	GEOST
3789.5 [m]	SWC	STATO
3791.5 [m]	SWC	STATO
3792.0 [m]	DC	GEOST
3792.5 [m]	SWC	STATO
3794.8 [m]	C	GEOST
3804.6 [m]	C	GEOST
3807.7 [m]	C	GEOST
3812.0 [m]	C	GEOST
3821.7 [m]	C	GEOST
3830.2 [m]	C	GEOST
3837.3 [m]	C	GEOST
3845.2 [m]	C	GEOST
3852.2 [m]	C	GEOST
3860.0 [m]	C	GEOST
3867.0 [m]	C	GEOST
3875.7 [m]	C	GEOST
3883.8 [m]	C	GEOST
3887.2 [m]	C	GEOST
3894.3 [m]	C	GEOST
3902.8 [m]	C	GEOST
3910.2 [m]	C	GEOST
3919.3 [m]	C	GEOST



3927.6	[m]	C	GEOST
3932.7	[m]	C	GEOST
3934.5	[m]	SWC	STATO
3938.0	[m]	SWC	STATO
3944.0	[m]	SWC	STATO
3949.5	[m]	SWC	STATO
3954.5	[m]	C	GEOST
3962.5	[m]	C	GEOST
3967.6	[m]	C	GEOST
3973.0	[m]	C	GEOST
3974.6	[m]	C	GEOST
3979.4	[m]	C	GEOST
3981.3	[m]	C	GEOST
3986.2	[m]	C	GEOST
3990.0	[m]	DC	GEOST
3999.0	[m]	DC	GEOST
4008.0	[m]	DC	GEOST
4017.0	[m]	DC	GEOST
4026.0	[m]	DC	GEOST
4035.0	[m]	DC	GEOST
4044.0	[m]	DC	GEOST
4053.0	[m]	DC	GEOST
4062.0	[m]	DC	GEOST
4071.0	[m]	DC	GEOST
4080.0	[m]	DC	GEOST
4095.0	[m]	DC	GEOST
4098.0	[m]	DC	GEOST
4107.0	[m]	DC	GEOST
4116.0	[m]	DC	GEOST
4128.0	[m]	DC	GEOST
4134.0	[m]	DC	GEOST
4146.0	[m]	DC	GEOST
4152.0	[m]	DC	GEOST
4161.0	[m]	DC	GEOST
4170.0	[m]	DC	GEOST
4179.0	[m]	DC	GEOST
4188.0	[m]	DC	GEOST
4197.0	[m]	DC	GEOST
4206.0	[m]	DC	GEOST
4215.0	[m]	DC	GEOST



4224.0 [m]	DC	GEOST
4233.0 [m]	DC	GEOST
4242.0 [m]	DC	GEOST
4251.0 [m]	DC	GEOST
4260.0 [m]	DC	GEOST
4269.0 [m]	DC	GEOST
4278.0 [m]	DC	GEOST
4287.0 [m]	DC	GEOST
4293.0 [m]	DC	GEOST
4299.0 [m]	DC	GEOST
4308.0 [m]	DC	GEOST
4317.0 [m]	DC	GEOST
4323.0 [m]	DC	GEOST

Oljeprøver i Sökkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST1	3895.00	0.00		09.09.1992 - 01:00	YES
DST	DST2	3874.00	0.00		15.09.1992 - 22:00	YES
DST	DST3	3794.00	0.00		23.09.1992 - 13:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
145	NORDLAND GP
815	UTSIRA FM
879	HORDALAND GP
879	NO FORMAL NAME
1936	ROGALAND GP
1936	BALDER FM
2011	SELE FM
2077	LISTA FM
2185	SHETLAND GP
2185	JORSALFARE FM
2438	KYRRE FM



3419	TRYGGVASON FM
3543	BLODØKS FM
3599	CROMER KNOLL GP
3599	RØDBY FM
3620	SOLA FM
3642	ÅSGARD FM
3672	VIKING GP
3672	DRAUPNE FM
3709	HEATHER FM
3792	BRENT GP
3792	TARBERT FM
3808	NESS FM
3934	ETIVE FM
3944	RANNOCH FM
3974	OSEBERG FM
3983	DUNLIN GP
3983	DRAKE FM
4161	COOK FM
4199	BURTON FM
4241	AMUNDSEN FM
4288	STATFJORD GP
4288	NANSEN FM
4294	EIRIKSSON FM

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
1970_GCH_1	pdf	0.54
1970_GCH_2	pdf	3.15
1970_GCH_3	pdf	1.15
1970_GCH_4	pdf	1.93

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
1970_01_WDSS_General_Information	pdf	0.60
1970_02_WDSS_completion_log	pdf	0.24





Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
1970_30_2_3_Completion_Report_and_log	pdf	22.86

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3895	3898	12.7
2.0	3874	3881	12.7
3.1	3794	3803	12.7

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0		4.000		
2.0	53.000	40.000		
3.1		14.000		

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	24	4300	0.810	0.720	1790
2.0	319	671000	0.800	0.700	2100
3.1	215	466800	0.797	0.690	2180

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL GR	1650	2283
CBL VDL GR	2972	3692
CBL VDL GR	3550	4041
CST GR	1118	2227
CST GR	3708	3952
CST GR	3717	3722
DIL BHC MSFL GR	3706	4323





DIL SLS GR CAL	1099	3723
DLL GR	3706	3875
FMS GR	3706	4000
LDL CNL GR	2280	3722
LDL CNL NGT	3706	4325
MWD	209	4325
RFT HP GR	3797	4317
VSP	1780	4324

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	205.0	36	206.0	0.00	LOT
INTERM.	20	1099.0	26	1100.0	1.70	LOT
INTERM.	13 3/8	2283.0	17 1/2	2285.0	1.91	LOT
INTERM.	9 5/8	3706.0	12 1/4	3708.0	2.05	LOT
LINER	7	4088.0	8 1/2	4325.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	flytegrense [Pa]	Type slam	Dato, måling
520	1.03			WATER BASED	
756	1.03			WATER BASED	
1099	1.03			WATER BASED	
1115	1.03			WATER BASED	
1597	1.39	35.0		WATER BASED	
2298	1.59	42.0		WATER BASED	
2301	1.64	33.0		WATER BASED	
2346	1.67	35.0		WATER BASED	
2604	1.75	40.0		WATER BASED	
2742	1.75	32.0		WATER BASED	
2859	1.75	36.0		WATER BASED	
2894	1.78	37.0		WATER BASED	
2973	1.78	38.0		WATER BASED	
3044	1.78	36.0		WATER BASED	
3149	1.78	36.0		WATER BASED	
3284	1.78	30.0		WATER BASED	



3545	1.82	28.0		WATER BASED	
3560	1.82	28.0		WATER BASED	
3723	1.85	37.0		WATER BASED	
3723	1.85	37.0		WATER BASED	
3727	1.85	27.0		WATER BASED	
3749	1.85	26.0		WATER BASED	
3756	1.85	26.0		WATER BASED	
3791	1.87	43.0		WATER BASED	
3792	1.89	30.0		WATER BASED	
3793	1.85			DUMMY	
3816	1.85			DUMMY	
3830	1.87			DUMMY	
3855	1.87	32.0		WATER BASED	
3886	1.87	30.0		WATER BASED	
3911	1.87	32.0		WATER BASED	
3953	1.87	33.0		WATER BASED	
3968	1.87	29.0		WATER BASED	
4011	1.87	26.0		WATER BASED	
4091	1.87	27.0		WATER BASED	
4325	1.86	18.0		WATER BASED	
4325	1.87	17.0		WATER BASED	

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]
1970 Formation pressure (Formasjonstrykk)	pdf	0.21

