General information

Wellbore name	30/2-2
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	HULDRA
Discovery	30/2-1 Huldra
Well name	30/2-2
Seismic location	L 8330 - 134 SP. 430
Production licence	051
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	447-L
Drilling facility	DYVI DELTA
Drilling days	137
Entered date	19.12.1984
Completed date	04.05.1985
Release date	04.05.1987
Publication date	18.02.2015
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	NO
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	BRENT GP
Kelly bushing elevation [m]	29.0
Water depth [m]	123.0
Total depth (MD) [m RKB]	4172.0
Final vertical depth (TVD) [m RKB]	4169.0
Maximum inclination [°]	7.8
Bottom hole temperature [°C]	152
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	DRAKE FM
Geodetic datum	ED50
NS degrees	60° 49' 53.89'' N
EW degrees	2° 39' 51.65'' E
NS UTM [m]	6744240.64
EW UTM [m]	481749.07

UTM zone	31
NPDID wellbore	457

Wellbore history

General

Well 30/2-2 was drilled on the Mokkukalven Fault Complex north of the Oseberg Field in the North Sea. The objective was to test possible hydrocarbon accumulations in the Huldra Field, on a structural high that is separated from Huldra discovery well 30/2-1 with significant faults. Well 30/2-1 encountered a 119 m gas column in the Brent Group with a down-to contact at 3793 m. The actual gas/water or oil/water contact could not be established. The main target for 30/2-2 was the Brent Group, believed to be some 70 m deeper than the gas column in 30/2-1.

Operations and results

Appraisal well 30/2-2 was spudded with the semi-submersible installation Dyvi Delta on 19 December 1984 and drilled to TD at 4172 m in the Early Jurassic Drake Formation. When doing the reservoir logging, a radioactive part of the logging tool was left in the hole. This accident caused a sidetrack from 3894 m KB to TD. The sidetrack ran parallel to the original hole at a distance of approximately 20 m. The intention was to drill 50 m into the Statfjord Formation, but the well was finished in the Drake Formation due to hole conditions. The well was drilled with spud mud down to 214 m, with gel/seawater from 214 m to 1023 m, with gypsum/CMC mud from 1023 m to 3802 m, and with gel/lignosulphonate from 3802 m to TD.

Gas bearing Brent sandstone was encountered at 3935 m, with the gas-water contact somewhere in the interval 3975 - 4080 m. No distinct contact was possible to recognize from logs or shows, but later geochemical analyses of the corers indicated a contact at ca 3984 m. Fluorescence indicating shows was first recorded on claystone/limestone cuttings in the interval 2204 m to 2267 m in the Lista Formation. Intermittent golden cut was observed on cuttings samples in the interval 2489 m to 2585 m in the Shetland Group. Otherwise, oil/condensate shows were recorded on sandstones from the Brent Group through the hydrocarbon-bearing reservoir. Below the contact, weak shows believed to relate to in-situ kerogen in coals and shales were recorded down to TD.

A total of 157 m conventional core was recovered in eighteen cores in the interval from 3908 m in the lower Heather Formation, through all of Brent Group and down to 4139.1 m in the uppermost Drake Formation. All cores were cut in the original hole, before side-tracking. Log runs 1 to 5 were also run in the original hole, while run 6 and 7 were run in the sidetrack. No wire line fluid samples were taken.

The well was permanently abandoned on 4 May 1985 as a gas appraisal well.

Testing

Three drill stem tests were conducted in the Brent Group.

DST 1B tested the interval 4071 - 4076 m in the Etive Formation. The test flowed water at only five m3/day through a 19.05 mm choke during a 7.07 hours flow period. The maximum temperature reading was 150 °C. DST 1A failed due to technical problems.

DST 2B tested the intervals 4011-4013 m, 4017-4025 m, and 4035 - 4042 m in the Ness Formation. The test flowed water at only eight m3/day through a 19.05 mm choke during a 13.5 hours flow period. The maximum temperature reading was 148 °C. DST 2A failed due to technical problems.

DST 3 tested the intervals 3935 - 3949 m, 3955 – 3959 m, and 3967-3974 m in the Tarbert Formation. It produced 227600 Sm3 gas and 105 Sm3 condensate /day through a 19.05 mm choke. The GOR was 2170 Sm3/Sm3. The maximum temperature reading was 137 °C.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
220.00	4172.00

Cuttings available for sampling?	NO

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	3908.0	3912.5	[m]
2	3939.0	3957.3	[m]
3	3957.3	3965.8	[m]
4	3966.0	3979.8	[m]
5	3979.8	3987.6	[m]
6	3987.8	3989.6	[m]
7	3989.6	3993.5	[m]
8	3993.5	3997.5	[m]
9	4014.0	4025.6	[m]
10	4026.0	4027.9	[m]
11	4029.0	4031.6	[m]
12	4031.8	4047.7	[m]
13	4047.7	4048.9	[m]
14	4048.9	4052.5	[m]
15	4076.0	4093.8	[m]
16	4094.0	4112.3	[m]
17	4112.3	4130.3	[m]
18	4130.5	4135.5	[m]

Total core sample length [m]	158.4
Cores available for sampling?	YES

Core photos


3908-3912m


3939-3944m


3944-3950m


3950-3956m


3956-3957m


3957-3963m


3963-3965m


3966-3972m


3972-3978m


3978-3979m


3979-3985m


3985-3987m


3987-3989m


3989-3993m


3993-3997m


4014-4020m


4020-4025m


4026-4027m


4029-4031m


4031-4037m


4037-4043m


4043-4047m


4047-4048m


4048-4052m


4076-4082m


4082-4088m


4088-4093m


4094-4100m


4100-4106m


4106-4112m


4112-4112m


4112-4118m


4118-4124m


4124-4130m


4130-4130m


4130-4135m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
2000.0	[m]	C	GEOST
2018.0	[m]	C	GEOST
2030.0	[m]	C	GEOST
2048.0	[m]	C	GEOST
2060.0	[m]	C	GEOST
2078.0	[m]	C	GEOST
2090.0	[m]	C	GEOST
2108.0	[m]	C	GEOST
2120.0	[m]	C	GEOST
2138.0	[m]	C	GEOST
2150.0	[m]	C	GEOST
2168.0	[m]	C	GEOST
2180.0	[m]	C	GEOST
2198.0	[m]	C	GEOST
2210.0	[m]	C	GEOST
2228.0	[m]	C	GEOST
2240.0	[m]	C	GEOST
2264.0	[m]	C	GEOST
2270.0	[m]	C	GEOST
2288.0	[m]	C	GEOST
2300.0	[m]	C	GEOST
2318.0	[m]	C	GEOST
2330.0	[m]	C	GEOST
2348.0	[m]	C	GEOST
2360.0	[m]	C	GEOST
2378.0	[m]	C	GEOST
2390.0	[m]	C	GEOST
2408.0	[m]	C	GEOST

2420.0	[m]	C	GEOST
2438.0	[m]	C	GEOST
2450.0	[m]	C	GEOST
2468.0	[m]	C	GEOST
2480.0	[m]	C	GEOST
2496.0	[m]	C	GEOST
2518.0	[m]	C	GEOST
2528.0	[m]	C	GEOST
2542.0	[m]	C	GEOST
2558.0	[m]	C	GOEST
2570.0	[m]	C	GEOST
2585.0	[m]	C	GEOST
2600.0	[m]	C	GEOST
2618.0	[m]	C	GEOST
2630.0	[m]	C	GEOST
2648.0	[m]	C	GEOST
2660.0	[m]	C	GEOST
2678.0	[m]	C	GEOST
2690.0	[m]	C	GEOST
2708.0	[m]	C	GEOST
2720.0	[m]	DC	GEOST
2738.0	[m]	C	GEOST
2750.0	[m]	C	GEOST
2753.0	[m]	C	GEOST
2768.0	[m]	C	GEOST
2780.0	[m]	C	GEOST
2798.0	[m]	C	GEOST
2810.0	[m]	C	GEOST
2828.0	[m]	C	GEOST
2840.0	[m]	C	GEOST
2858.0	[m]	C	GEOST
2870.0	[m]	C	GEOST
2888.0	[m]	C	GEOST
2900.0	[m]	C	GEOST
2918.0	[m]	C	GEOST
2930.0	[m]	C	GEOST
2948.0	[m]	C	GEOST
2960.0	[m]	DC	GEOST
2978.0	[m]	C	GEOST
2990.0	[m]	C	GEOST

3008.0	[m]	C	GEOST
3020.0	[m]	C	GEOST
3038.0	[m]	C	GEOST
3068.0	[m]	C	GEOST
3080.0	[m]	C	GEOST
3098.0	[m]	C	GEOST
3110.0	[m]	C	GEOST
3128.0	[m]	C	GEOST
3140.0	[m]	C	GEOST
3158.0	[m]	C	GEOST
3170.0	[m]	C	GEOST
3188.0	[m]	C	GEOST
3200.0	[m]	C	GEOST
3230.0	[m]	C	GEOST
3248.0	[m]	C	GEOST
3260.0	[m]	C	GEOST
3278.0	[m]	C	GEOST
3290.0	[m]	C	GEOST
3308.0	[m]	C	GEOST
3320.0	[m]	C	GEOST
3338.0	[m]	C	GEOST
3350.0	[m]	C	GEOST
3368.0	[m]	C	GEOST
3380.0	[m]	C	GEOST
3398.0	[m]	C	GEOST
3410.0	[m]	C	GEOST
3428.0	[m]	C	GEOST
3440.0	[m]	C	GEOST
3458.0	[m]	C	GEOST
3470.0	[m]	C	GEOST
3488.0	[m]	C	GEOST
3500.0	[m]	C	GEOST
3518.0	[m]	C	GEOST
3530.0	[m]	C	GEOST
3548.0	[m]	C	GEOST
3560.0	[m]	C	GEOST
3578.0	[m]	C	GEOST
3590.0	[m]	C	GEOST
3608.0	[m]	C	GEOST
3620.0	[m]	C	GEOST

3638.0	[m]	C	GEOST
3650.0	[m]	C	GEOST
3668.0	[m]	C	GEOST
3680.0	[m]	C	GEOST
3698.0	[m]	C	GEOST
3710.0	[m]	C	GEOST
3728.0	[m]	C	GEOST
3740.0	[m]	C	GEOST
3758.0	[m]	C	GEOST
3761.0	[m]	C	GEOST
3770.0	[m]	C	GEOST
3788.0	[m]	C	GEOST
3800.0	[m]	C	GEOST
3818.0	[m]	C	GEOST
3830.0	[m]	C	GEOST
3839.0	[m]	C	GEOST
3848.0	[m]	C	GEOST
3860.0	[m]	C	GEOST
3869.0	[m]	C	GEOST
3878.0	[m]	C	GEOST
3890.0	[m]	C	GEOST
3899.0	[m]	C	GEOST
3908.0	[m]	C	GEOST
3920.0	[m]	C	GEOST
3938.0	[m]	C	GEOST
3940.0	[m]	C	GEOST
3944.0	[m]	SWC	GEOST
3950.0	[m]	DC	GEOST
3953.0	[m]	C	GEOST
3956.0	[m]	C	GEOST
3956.0	[m]	DC	GEOST
3964.0	[m]	C	GEOST
3968.0	[m]	DC	GEOST
3970.0	[m]	C	GEOST
3975.0	[m]	C	GEOST
3976.0	[m]	C	GEOST
3977.0	[m]	DC	GEOST
3978.0	[m]	C	GEOST
3980.0	[m]	DC	GEOST
3980.0	[m]	C	GEOST

3983.0	[m]	C	GEOST
3985.0	[m]	DC	GEOST
3990.0	[m]	DC	GEOST
3994.0	[m]	DC	GEOST
3995.0	[m]	SWC	GEOST
3998.0	[m]	DC	GEOST
4004.0	[m]	SWC	GEOST
4010.0	[m]	DC	GEOST
4014.0	[m]	C	GEOST
4018.0	[m]	C	GEOST
4024.0	[m]	C	GEOST
4027.0	[m]	C	GEOST
4028.0	[m]	DC	GEOST
4029.0	[m]	DC	GEOST
4030.0	[m]	C	GEOST
4036.0	[m]	C	GEOST
4040.0	[m]	DC	GEOST
4040.0	[m]	C	GEOST
4043.0	[m]	C	GEOST
4044.0	[m]	DC	GEOST
4046.0	[m]	DC	GEOST
4047.0	[m]	DC	GEOST
4048.0	[m]	DC	GEOST
4048.0	[m]	C	GEOST
4049.0	[m]	C	GEOST
4051.0	[m]	DC	GEOST
4051.0	[m]	C	GEOST
4052.0	[m]	C	GEOST
4058.0	[m]	DC	GEOST
4061.0	[m]	SWC	GEOST
4070.0	[m]	SWC	GEOST
4070.0	[m]	DC	GEOST
4079.0	[m]	SWC	GEOST
4088.0	[m]	DC	GEOST
4089.0	[m]	C	GEOST
4093.0	[m]	DC	GEOST
4093.0	[m]	C	GEOST
4095.0	[m]	DC	GEOST
4096.0	[m]	DC	GEOST
4097.0	[m]	C	GEOST

4098.0	[m]	C	GEOST
4100.0	[m]	DC	GEOST
4106.0	[m]	SWC	GEOST
4115.0	[m]	SWC	GEOST
4118.0	[m]	SWC	GEOST
4118.0	[m]	DC	GEOST
4126.0	[m]	DC	GEOST
4128.0	[m]	C	GEOST
4130.0	[m]	DC	GEOST
4132.0	[m]	C	GEOST
4134.0	[m]	C	GEOST
4135.0	[m]	DC	GEOST
4148.0	[m]	DC	GEOST
4160.0	[m]	DC	GEOST
4172.0	[m]	DC	GEOST

Oil samples at the Norwegian Offshore Directorate

Test type	Bottle number	Top depth MD [m]	Bottom depth MD [m]	Fluid type	Test time	Samples available
DST	TEST3	3935.00	3974.00		23.04.1985 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
152	NORDLAND GP
783	UTSIRA FM
892	HORDALAND GP
892	NO FORMAL NAME
1967	ROGALAND GP
1967	BALDER FM
2041	SELE FM
2063	LISTA FM
2224	SHETLAND GP
2224	JORSALFARE FM
2533	KYRRE FM
3442	TRYGGVASON FM

3679	BLODØKS FM
3702	CROMER KNOLL GP
3702	UNDIFFERENTIATED
3776	VIKING GP
3776	DRAUPNE FM
3824	HEATHER FM
3935	BRENT GP
3935	TARBERT FM
3959	NESS FM
4070	ETIVE FM
4075	RANNOCH FM
4098	OSEBERG FM
4135	DUNLIN GP
4135	DRAKE FM

Geochemical information

Document name	Document format	Document size [MB]
457_GCH_1	pdf	0.63
457_GCH_2	pdf	3.83
457_GCH_3	pdf	1.71
457_GCH_4	pdf	2.47
457_GCH_5	pdf	0.41
457_GCH_6	pdf	0.10
457_GCH_7	pdf	0.32
457_GCH_8	pdf	0.46

Documents - older Norwegian Offshore Directorate WDSS reports and other related documents

Document name	Document format	Document size [MB]
457_01_WDSS_General_Information	pdf	0.30
457_02_WDSS_completion_log	pdf	0.30

Documents - reported by the production licence (period for duty of secrecy expired)

Document name	Document format	Document size [MB]
457_30_2_2_Completion_log	pdf	5.09
457_30_2_2_Completion_Report	pdf	29.56

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	4071	4076	19.1
2.0	4011	4042	19.1
3.0	3935	3974	19.1

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				
2.0				
3.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0					
2.0					
3.0	105	226000	0.808	0.734	2160

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL	722	2345
CBL	2425	3788
CBL	3600	4127
CDL CNS GR	214	4163
DIL BCS CAL GR	214	4164
DLL MSF GR	1006	2718
FED	2345	2716
NGT	3665	4175
SFT	3937	4100
VELOCITY	800	4125

Casing and leak-off tests

Casing type	Casing diam. [inch]	Casing depth [m]	Hole diam. [inch]	Hole depth [m]	LOT/FIT mud eqv. [g/cm3]	Formation test type
CONDUCTOR	30	214.5	36	214.5	0.00	LOT
SURF.COND.	20	1008.0	26	1023.0	1.61	LOT
INTERM.	13 3/8	2350.0	17 1/2	2365.0	2.03	LOT
INTERM.	9 5/8	3778.0	12 1/4	3802.0	2.14	LOT
LINER	7	4170.0	8 1/2	4170.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
1670	1.11	9.0	7.3	WATERBASED	04.01.1985
1670	1.11	9.0	7.3	WATER BASED	04.01.1985
1870	1.25	9.0	10.0	WATER BASED	07.01.1985
1870	1.25	9.0	10.0	WATERBASED	07.01.1985
1978	1.35	10.0	13.0	WATER BASED	07.01.1985
1978	1.35	10.0	13.0	WATERBASED	07.01.1985
2122	1.45	15.0	15.2	WATER BASED	07.01.1985
2122	1.45	15.0	15.2	WATERBASED	07.01.1985
2258	1.45	16.0	8.3	WATERBASED	07.01.1985
2258	1.45	16.0	8.3	WATER BASED	07.01.1985
2365	1.50	16.0	8.4	WATER BASED	09.01.1985
2365	1.53	17.0	8.9	WATER BASED	09.01.1985
2365	1.55	16.0	7.0	WATER BASED	14.01.1985
2365	1.50	16.0	8.4	WATERBASED	09.01.1985
2365	0.00	17.0	8.9	WATERBASED	09.01.1985
2365	0.00	16.0	7.0	WATERBASED	14.01.1985
2472	1.55	18.0	7.4	WATERBASED	14.01.1985
2472	1.55	18.0	7.4	WATER BASED	14.01.1985
2533	1.60	20.0	7.9	WATER BASED	15.01.1985
2533	1.60	20.0	7.9	WATERBASED	15.01.1985
2556	1.70	21.0	7.4	WATERBASED	15.01.1985
2556	1.70	21.0	7.4	WATER BASED	15.01.1985
2605	1.70	22.0	7.9	WATER BASED	16.01.1985
2605	1.70	22.0	7.9	WATERBASED	16.01.1985

2619	1.73	22.0	7.4	WATER BASED	16.01.1985
2619	1.73	22.0	7.4	WATERBASED	16.01.1985
2704	1.77	22.0	7.0	WATERBASED	17.01.1985
2704	1.77	22.0	7.0	WATER BASED	17.01.1985
2802	1.75	19.0	7.0	WATER BASED	18.01.1985
2802	1.75	19.0	7.0	WATERBASED	18.01.1985
2909	1.78	22.0	8.0	WATERBASED	21.01.1985
2909	1.78	22.0	8.0	WATER BASED	21.01.1985
2980	1.79	22.0	8.0	WATERBASED	28.01.1985
2980	1.79	22.0	8.0	WATER BASED	28.01.1985
3802	1.82	22.0	6.0	WATERBASED	11.02.1985
3802	1.82	22.0	6.0	WATER BASED	11.02.1985
3884	1.91	25.0	8.0	WATER BASED	18.02.1985
3884	1.91	25.0	8.0	WATERBASED	18.02.1985
3938	1.96	35.0	8.0	WATER BASED	01.04.1985
3938	1.96	35.0	8.0	WATERBASED	01.04.1985
3950	1.96	35.0	8.0	WATERBASED	01.04.1985
3950	1.96	35.0	8.0	WATER BASED	01.04.1985
4013	1.94	26.0	8.8	WATERBASED	26.02.1985
4013	1.94	26.0	8.8	WATER BASED	26.02.1985
4019	1.96	35.0	8.0	WATER BASED	01.04.1985
4019	1.96	35.0	8.0	WATERBASED	01.04.1985
4100	1.96	35.0	8.0	WATERBASED	01.04.1985
4100	1.96	35.0	8.0	WATER BASED	01.04.1985
4172	1.96	35.0	8.4	WATER BASED	26.03.1985
4172	1.96	35.0	8.4	WATERBASED	26.03.1985
4174	1.94	26.0	8.8	WATER BASED	06.03.1985
4174	1.94	26.0	8.8	WATERBASED	06.03.1985

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
4134.68	[m]
4132.38	[m]
4124.70	[m]
4106.35	[m]
4106.02	[m]
4098.90	[m]
4093.30	[m]
4089.65	[m]

4086.65	[m]
4082.65	[m]
4078.65	[m]
4040.25	[m]
4020.73	[m]
3984.42	[m]
3973.67	[m]
3968.45	[m]
4116.65	[m]
3963.74	[m]
3957.82	[m]
3955.70	[m]
3951.45	[m]
3944.90	[m]
3939.95	[m]
4022.30	[m]
3945.00	[m]
4102.00	[m]
3974.90	[m]
3949.40	[m]
4042.90	[m]
4079.40	[m]

Pressure plots

The pore pressure data is sourced from well logs if no other source is specified. In some wells where pore pressure logs do not exist, information from Drill stem tests and kicks have been used. The data has been reported to the NPD, and further processed and quality controlled by IHS Markit.

Document name	Document format	Document size [MB]
457_Formation_pressure_(Formasjonstrykk)	pdf	0.21