General information

Wellbore name	2/1-8
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	GYDA
Discovery	2/1-3 Gyda
Well name	2/1-8
Seismic location	BP 80 - 37 SP. 400
Production licence	019 B
Drilling operator	BP Norway Limited U.A.
Drill permit	473-L
Drilling facility	NEDDRILL TRIGON
Drilling days	119
Entered date	28.07.1985
Completed date	23.11.1985
Release date	23.11.1987
Publication date	12.03.2011
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	ULA FM
Kelly bushing elevation [m]	37.0
Water depth [m]	66.0
Total depth (MD) [m RKB]	4151.0
Final vertical depth (TVD) [m RKB]	4146.0
Maximum inclination [°]	6
Bottom hole temperature [°C]	160
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SKAGERRAK FM
Geodetic datum	ED50
NS degrees	56° 53' 40.63'' N
EW degrees	3° 6' 55.95'' E
NS UTM [m]	6305802.54
EW UTM [m]	507039.08

UTM zone	31
NPDID wellbore	459

Wellbore history

General

Well 2/1-8 was drilled on the Cod Terrace on the margin between the southern Vestland Arch and the Central Trough in the North Sea. The objective was to evaluate the Late Jurassic Gyda member reservoir sandstone (the "2/1-3 Sand") in the south-eastern part of the field.

Operations and results

Appraisal well 2/1-8 was spudded with the jack-up installation Neddrill Trigon on 28 July 1985 and drilled to TD at 4151 m (4159 m Logger's Depth) in the Triassic Skagerrak Formation. The well was drilled with spud mud down to 635 m, and with KCl/polymer mud from 635 m to 3474 m. At this depth the drill string got stuck while pulling out of the hole. It was freed after pumping pipelax into the hole. Following the pipelax pill and down to 3888 m the mud contained 1.0 - 2.5% oil. Drilling commenced with an oil-free KCl/polymer mud from 3888 m to TD. Below 2000 m logger's depth = driller's depth + 8 m. Above this depth there is no discrepancy. In the following all quoted depths are logger's depths.

A 40 m thick Gyda member sandstone was penetrated at a depth of 3899.5 m. Cores from the reservoir proved a coarsening up sequence of very fine to medium grained sandstone. The reservoir was oil bearing throughout. Oil stain and gas bleed were observed in cores of very fine sandstones and siltstones from the underlying Farsund and Haugesund Formations. The Ula Formation at 4037 m was 26 m thick and water bearing. Traces of hydrocarbons were recorded from 3818 - 3821 m in the Early Cretaceous Åsgard Formation. These possibly result from leakage, up a minor fault, from Late Jurassic rocks. There were no significant hydrocarbon shows in any other section of the well.

Three cores were cut in the Late Jurassic Gyda member, Farsund Formation, and Haugesund Formation, from 3906.0 to 3989.3 m with 95 to 100 % recovery. The RFT tool was run for pressure points, but no wire line fluid samples were taken.

The well was permanently abandoned on 23 November 1985 as an oil appraisal well.

Testing

Two drill stem tests were carried out in the Gyda member sandstone

DST1A tested the interval 3919 to 3926 m. This test was designed to evaluate the lower part of the reservoir; however it is thought that communication vas established behind casing with more permeable higher zones. Thus the results are unreliable. The test produced oil at a maximum rate of 1950 Sm3/day through a 16/64" choke. Oil gravity was 39.8 deg API and GOR was 633 Sm3/Sm3. The maximum flowing bottom hole temperature measured in the test was 154 deg C.

DST1B tested the interval 3900.5-3926 m. Dry oil was produced at a maximum rate of 1010 Sm3/day through a 28/64" fixed choke. The oil gravity was 40 deg API and the GOR was 665 Sm3/Sm3.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
190.00	4152.00

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	3898.0	3924.0	[m]
2	3925.8	3931.0	[m]
3	3953.0	3981.3	[m]

Total core sample length [m]	59.5
Cores available for sampling?	YES

Core photos


3898-3903m


3903-3908m


3908-3913m


3913-3918m


3918-3923m


3923-3924m


3925-3930m


3930-3935m


3935-3940m


3940-3945m


3945-3950m


3950-3953m


3953-3958m


3958-3963m


3963-3968m


3968-3973m


3973-3978m


3978-3981m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
3890.1	[m]	C	APT
3898.2	[m]	C	APT
3900.0	[m]	C	APT
3901.8	[m]	C	APT
3901.9	[m]	C	APT
3902.9	[m]	C	APT
3903.4	[m]	C	APT
3904.9	[m]	C	APT
3905.6	[m]	C	APT
3907.5	[m]	C	APT
3909.7	[m]	C	APT
3910.7	[m]	C	APT
3912.7	[m]	C	APT
3914.3	[m]	C	APT
3916.4	[m]	C	APT
3919.5	[m]	C	APT
3921.4	[m]	C	APT
3923.4	[m]	C	APT
3926.4	[m]	C	APT
3928.4	[m]	C	APT
3930.4	[m]	C	APT
3932.4	[m]	C	APT
3934.4	[m]	C	APT
3936.4	[m]	C	APT
3938.4	[m]	C	APT
3940.4	[m]	C	APT
3942.4	[m]	C	APT
3946.4	[m]	C	APT
3948.4	[m]	C	APT

3950.4	[m]	C	APT
3952.4	[m]	C	APT
3954.4	[m]	C	APT
3956.4	[m]	C	APT
3958.4	[m]	C	APT
3960.4	[m]	C	APT
3962.4	[m]	C	APT
3962.4	[m]	C	APT
3964.4	[m]	C	APT
3968.4	[m]	C	APT
3970.4	[m]	C	APT
3972.4	[m]	C	APT
3974.4	[m]	C	APT
3976.4	[m]	C	APT
3978.4	[m]	C	APT
3980.4	[m]	C	APT
3981.4	[m]	C	APT
3990.0	[m]	DC	APT
3996.0	[m]	DC	APT
3999.0	[m]	DC	APT
4002.0	[m]	DC	APT
4005.0	[m]	DC	APT
4008.0	[m]	DC	APT
4011.0	[m]	DC	APT
4014.0	[m]	DC	APT
4017.0	[m]	DC	APT
4020.0	[m]	DC	APT
4023.0	[m]	DC	APT
4026.0	[m]	DC	APT
4029.0	[m]	DC	APT
4032.0	[m]	DC	APT
4035.0	[m]	DC	APT
4038.0	[m]	DC	APT
4041.0	[m]	DC	APT
4044.0	[m]	DC	APT
4047.0	[m]	DC	APT
4050.0	[m]	DC	APT
4053.0	[m]	DC	APT
4056.0	[m]	DC	APT
4059.0	[m]	DC	APT

4062.0	[m]	DC	APT
4065.0	[m]	DC	APT

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
103	NORDLAND GP
1790	HORDALAND GP
2847	ROGALAND GP
2847	BALDER FM
2901	SELE FM
2909	FORTIES FM
3022	LISTA FM
3065	VIDAR FM
3097	LISTA FM
3148	SHETLAND GP
3148	EKOFISK FM
3230	TOR FM
3521	HOD FM
3610	BLODØKS FM
3621	HIDRA FM
3630	CROMER KNOLL GP
3630	RØDBY FM
3678	TUXEN FM
3713	RAN SANDSTONE UNITS
3717	ÅSGARD FM
3880	TYNE GP
3880	MANDAL FM
3900	FARSUND FM
3965	HAUGESUND FM
4037	VESTLAND GP
4037	ULA FM
4063	BRYNE FM
4081	NO GROUP DEFINED
4081	SKAGERRAK FM

Composite logs

Document name	Document format	Document size [MB]
459	pdf	0.69

Geochemical information

Document name	Document format	Document size [MB]
459_1	pdf	1.09
459_2	pdf	0.75
459_3	pdf	0.19

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

Document name	Document format	Document size [MB]
459_01_WDSS_completion_log	pdf	0.33
459_02_WDSS_General_Information	pdf	0.25

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

Document name	Document format	Document size [MB]
459_2_1_8_Completion_Log	pdf	2.96
459_2_1_8_Completion_report	pdf	6.76

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3919	3926	6.4
2.0	3901	3926	11.1

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

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	305		0.826	0.740	99
2.0	954		0.825	0.825	107

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL GR	50	2000
CST GR	3890	4141
CYBERDIP	3887	4155
CYBERLOOK	3890	4145
DLL MAFL GR CAL	3887	4159
GR SP	3600	3832
HP RFT GR	3902	4140
ISF BHC GR SP	3877	4159
ISF BHC MAFL GR CAL SP	2000	3895
ISF LSS GR SP	193	633
ISF LSS MSFL GR CAL SP	625	2003
LDL CNL NGL CAL	3887	4159
NGL SP	3887	4159
SHDT GR	3887	4155

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	193.0	36	193.0	0.00	LOT
SURF.COND.	20	625.0	26	635.0	1.76	LOT
INTERM.	13 3/8	2000.0	17 1/2	2005.0	2.04	LOT
INTERM.	9 5/8	3888.0	12 1/4	3898.0	2.12	LOT
OPEN HOLE		4158.0	8 1/2	4158.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
139	1.08	100.0		WATER BASED	29.07.1985

183	1.08			WATER BASED	29.07.1985
188	1.06	19.0		WATER BASED	05.08.1985
215	1.06	20.0	16.0	WATER BASED	05.08.1985
373	1.09	15.0	15.0	WATER BASED	05.08.1985
536	1.09	20.0	19.0	WATER BASED	07.08.1985
635	1.12	17.0	17.0	WATER BASED	08.08.1985
640	1.18	28.0	5.8	WATER BASED	08.08.1985
920	1.23	23.0	5.8	WATER BASED	13.08.1985
1115	1.28	22.0	5.8	WATER BASED	12.08.1985
1280	1.30	23.0	6.2	WATER BASED	13.08.1985
1429	1.33	22.0	5.8	WATER BASED	15.08.1985
1632	1.35	25.0	5.8	WATER BASED	19.08.1985
1788	1.41	23.0	5.8	WATER BASED	19.08.1985
1788	1.50	21.0	6.2	WATER BASED	19.08.1985
1817	1.50	25.0	6.2	WATER BASED	17.08.1985
1971	1.56	30.0	6.7	WATER BASED	21.08.1985
2000	1.58	27.5	5.3	WATER BASED	18.09.1985
2005	1.57	27.0	4.8	WATER BASED	26.08.1985
2005	1.56	23.0	7.2	WATER BASED	21.08.1985
2005	1.58	31.0	6.2	WATER BASED	23.08.1985
2005	1.59	3531.0	76.2	WATER BASED	26.08.1985
2005	1.59	35.0	7.2	WATER BASED	26.08.1985
2005	1.56	28.0	4.8	WATER BASED	26.08.1985
2005	1.56	27.0	4.3	WATER BASED	27.08.1985
2005	1.56	37.0	11.5	WATER BASED	29.08.1985
2005	1.57	20.0	3.8	WATER BASED	02.09.1985
2005	1.58	38.0	11.5	WATER BASED	02.09.1985
2009	1.58	34.0	8.6	WATER BASED	02.09.1985
2345	1.58	37.0	7.7	WATER BASED	03.09.1985
2365	1.59	37.0	7.2	WATER BASED	04.09.1985
2509	1.58	37.0	6.7	WATER BASED	05.09.1985
2706	1.58	35.0	7.7	WATER BASED	06.09.1985
2878	1.58	37.0	11.0	WATER BASED	09.09.1985
2894	1.58	27.0	5.8	WATER BASED	09.09.1985
2952	1.58	17.0	5.8	WATER BASED	09.09.1985
2994	1.58	36.0	7.7	WATER BASED	10.09.1985
3000	1.58	30.0	7.2	WATER BASED	11.09.1985
3095	1.58	35.0	9.6	WATER BASED	12.09.1985
3171	1.58	24.0	6.7	WATER BASED	13.09.1985
3196	1.58	24.5	9.1	WATER BASED	16.09.1985

3222	1.58	21.0	4.8	WATER BASED	16.09.1985
3254	1.58	24.5	5.3	WATER BASED	16.09.1985
3344	1.58	27.0	5.8	WATER BASED	17.09.1985
3432	1.58	22.5	5.3	WATER BASED	19.09.1985
3578	1.58	26.0	4.8	WATER BASED	20.09.1985
3602	1.61	35.0	7.2	WATER BASED	18.11.1985
3660	1.60	27.0	6.2	WATER BASED	23.09.1985
3723	1.62	32.5	7.2	WATER BASED	23.09.1985
3723	1.62	37.5	6.2	WATER BASED	23.09.1985
3723	1.62	29.0	5.8	WATER BASED	24.09.1985
3723	1.61	23.0	4.8	WATER BASED	25.09.1985
3736	1.62	31.0	6.7	WATER BASED	26.09.1985
3775	1.62	37.0	6.7	WATER BASED	27.09.1985
3816	1.62	41.0	8.6	WATER BASED	30.09.1985
3832	1.64	38.0	7.2	WATER BASED	30.09.1985
3844	1.64	37.0	7.2	WATER BASED	01.10.1985
3884	1.64	35.0	7.7	WATER BASED	01.10.1985
3888	1.68	32.0	5.8	WATER BASED	02.10.1985
3888	1.69	33.0	6.2	WATER BASED	07.10.1985
3888	1.69	30.5	6.2	WATER BASED	08.10.1985
3888	1.69	32.5	7.2	WATER BASED	08.10.1985
3898	1.56	24.5	6.2	WATER BASED	08.10.1985
3926	1.56	24.0	5.8	WATER BASED	09.10.1985
3954	1.56	25.0	5.8	WATER BASED	09.10.1985
3981	1.56	29.0	6.7	WATER BASED	10.10.1985
4015	1.56	35.0	7.7	WATER BASED	11.10.1985
4051	1.56	33.5	7.2	WATER BASED	14.10.1985
4092	1.56	30.0	6.7	WATER BASED	14.10.1985
4151	1.57	29.0	5.8	WATER BASED	14.10.1985
4151	1.57	26.5	5.3	WATER BASED	15.10.1985
4151	1.57	26.5	5.3	WATER BASED	16.10.1985
4151	1.57	26.5	5.3	WATER BASED	17.10.1985
4151	1.57	25.5	5.1	WATER BASED	18.10.1985
4151	1.58	24.0	5.8	WATER BASED	21.10.1985
4151	1.58	23.0	5.8	WATER BASED	21.10.1985
4151	1.58	22.0	5.3	WATER BASED	21.10.1985
4151	1.57	23.0	6.7	WATER BASED	22.10.1985
4151	1.57	22.0	6.7	WATER BASED	23.10.1985
4151	1.56	20.0	3.8	WATER BASED	29.10.1985
4151	1.55	18.0	4.8	WATER BASED	29.10.1985

4151	1.57	17.0	4.3	WATER BASED	29.10.1985
4151	1.60	30.0	8.2	WATER BASED	29.10.1985
4151	1.60	30.0	8.2	WATER BASED	31.10.1985
4151	1.60	30.0	8.6	WATER BASED	01.11.1985
4151	1.60	32.0	9.1	WATER BASED	01.11.1985
4151	1.60	34.0	10.6	WATER BASED	04.11.1985
4151	1.60	32.0	9.1	WATER BASED	05.11.1985
4151	1.60		9.1	WATER BASED	07.11.1985
4151	1.60	32.0	8.6	WATER BASED	07.11.1985
4151	1.60	32.0	8.6	WATER BASED	11.11.1985
4151	1.60	29.5	9.1	WATER BASED	11.11.1985
4151	1.60	31.0	8.6	WATER BASED	11.11.1985
4151	1.60	34.0	9.6	WATER BASED	11.11.1985
4151	1.60	38.0	9.6	WATER BASED	12.11.1985
4151	1.60	35.0	7.2	WATER BASED	18.11.1985
4151	1.57	26.0	6.2	WATER BASED	21.10.1985
4151	1.55	20.0	5.8	WATER BASED	24.10.1985
4151	1.55	20.0	5.8	WATER BASED	29.10.1985
4151	1.61	27.0	7.2	WATER BASED	01.11.1985
4151	1.60	38.0	9.6	WATER BASED	18.11.1985

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]
459_Formation_pressure_(Formasjonstrykk)	PDF	0.22