



General information





Wellbore name	34/10-23
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	VALEMON
Discovery	34/10-23 Valemon
Well name	34/10-23
Seismic location	ST 8313 - 410 SP. 170
Production licence	050
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	465-L
Drilling facility	DYVI DELTA
Drilling days	161
Entered date	06.05.1985
Completed date	13.10.1985
Release date	13.10.1987
Publication date	10.01.2012
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	TARBERT FM
Kelly bushing elevation [m]	29.0
Water depth [m]	135.0
Total depth (MD) [m RKB]	4764.0
Final vertical depth (TVD) [m RKB]	4764.0
Bottom hole temperature [°C]	162
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	STATFJORD GP
Geodetic datum	ED50
NS degrees	61° 1' 6.35" N
EW degrees	2° 19' 1.57" E
NS UTM [m]	6765193.09
EW UTM [m]	463084.94
UTM zone	31
NPDID wellbore	476



Wellbore history

**General**

Well 34/10-23 was drilled on the Gullfaks Gamma structure, south-southeast of the Gullfaks Sør Field in the Northern North Sea. The objectives were to prove a significant hydrocarbon accumulation, with the Brent Group as the primary target and the Early Jurassic as secondary target. The first well on the structure, well 34/10-20, had the same targets as 34/10-23, but was terminated in the Early Cretaceous due to technical problems.

Operations and results

Wildcat well 34/10-23 was spudded with the semi-submersible installation Dyvi Delta on 6 May 1985 and drilled to TD at 4764 m into Sinemurian /possibly Rhaetian age sediments of the Statfjord Formation. The well took 28 days more than prognosed to drill. The main part of the extra time came in the 8 1/2" section, where among many other things, the BOP stack was pulled for inspection and repairs. A flow occurred at 4080 m just above top Brent Group, and approximately three days were used to bring the well under control. At 4409 m (4406.5 m TVD RKB) the deviation exceeded 5 deg. The last survey, at 4514 m (4510.8 m TVD RKB) m showed 9.1 deg deviation. If this deviation is extrapolated the vertical depth at TD is 4756.2, ca 8 m short of measured depth. The well was drilled with seawater and hi-vis pills down to 1252 m, with gypsum/lignosulphonate mud from 1252 to 3118 m, and with gypsum/lignosulphonate/lignite mud from 3118 m to 4525 m. At 4509 m the pipe stuck, and imco-spot/pipelax pills with 3% diesel were placed to free it. The final section from 4525 m to TD was drilled with a gel/lignosulphonate/lignite/Anco Resin mud system.

The pore pressure increased through the entire Cretaceous section and reached a maximum of 1.96 g/cc at the top of the Brent Group. Gas bearing Brent sandstone was encountered at 4083 m, approximately 100 m deeper than prognosed. A gas-water contact established at 4120 m. Analyses of the gas and the DST liquids showed a condensate character with significant contents of heavier components up to C35, including biomarkers.

Oil shows were recorded in sandstones in the Lista Formation from 2020 to 2050 m, and in the Kyrre Formation around 2954 m. Weak shows on limestone was recorded in the Svarte Formation from 3640 to 3714 m. Intermittent fluorescence was recorded on sandstones on cores, sidewall cores and cuttings below the hydrocarbon-bearing reservoir down to TD. Some of these could be due to pipe-freeing agents added at 4509 m.

Eleven cores were cut from 4082 m to 4308 m in the Tarbert, Ness, Etive, and Rannoch formations with an average recovery close to 100%. RFT wire line fluid samples were taken at 4084 m, 4176 m, 4718.5 m, and 4718.6 m.

The well was permanently abandoned on 13 October 1985 as a gas/condensate discovery.

Testing

One drill stem test, DST1, was performed in the interval 4085 - 4095 m. The test produced 1720000 Sm³ gas, 150 Sm³ oil, and 15 m³ water per day through a 22.2 mm choke. The initial reservoir pressure was 785.3 bar and the draw-down was 41 bar. The GOR was 11500 Sm³/Sm³. The DST temperature was 150 deg C.



Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
230.00	4764.00

Cuttings available for sampling?	YES
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Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	4082.0	4100.6	[m]
2	4103.0	4130.5	[m]
3	4130.5	4144.0	[m]
4	4144.2	4167.0	[m]
5	4167.5	4169.0	[m]
6	4169.7	4197.0	[m]
7	4197.6	4210.0	[m]
8	4211.6	4224.0	[m]
9	4225.1	4253.0	[m]
10	4253.0	4279.4	[m]
11	4280.0	4308.0	[m]

Total core sample length [m]	218.3
Cores available for sampling?	YES

Core photos



4082-4088m



4088-4094m



4094-4100m



4100-4100m



4103-4109m





4109-4115m



4115-4121m



4121-4127m



4127-4130m



4130-4136m



4136-4142m



4142-4144m



4144-4150m



4150-4156m



4156-4162m



4162-4167m



4167-4169m



4169-4175m



4175-4181m



4181-4187m



4187-4193m



4193-4197m



4197-4203m



4203-4209m



4209-4210m



4211-4217m



4217-4223m



4223-4224m



4225-4231m



4231-4237m



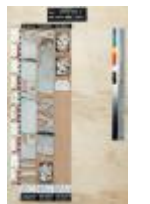
4237-4243m



4243-4249m



4249-4253m



4253-4259m



4259-4265m





4265-4271m 4271-4277m 4277-4279m 4280-4288m 4286-4292m



4292-4298m



4298-4304m



4304-4308m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
3887.5	[m]	DC	GEOCHEM
3897.5	[m]	DC	GEOCHE
3905.0	[m]	DC	GEOCHE
3917.5	[m]	DC	GEOCHE
3925.0	[m]	DC	GEOCHE
3932.5	[m]	DC	GEOCHE
3945.0	[m]	DC	GEOCHE
3957.5	[m]	DC	GEOCHE
3962.5	[m]	DC	GEOCHE
3967.5	[m]	DC	GEOCHE
3977.5	[m]	DC	GEOCHE
3985.0	[m]	DC	GEOCHE
4005.0	[m]	DC	GEOCHE
4015.0	[m]	DC	GEOCHE
4022.5	[m]	DC	GEOCHE
4035.0	[m]	DC	GEOCHE
4057.5	[m]	DC	GEOCHE
4082.5	[m]	DC	GEOCHE
4082.7	[m]	C	OD
4083.0	[m]	C	RRI
4087.2	[m]	C	OD
4090.0	[m]	DC	GEOCHEM
4092.8	[m]	C	OD
4097.9	[m]	C	OD
4098.0	[m]	C	RRI
4105.7	[m]	C	OD
4107.5	[m]	C	OD



4109.7 [m]	C	OD
4114.8 [m]	C	OD
4116.3 [m]	C	OD
4120.7 [m]	C	OD
4124.1 [m]	C	OD
4126.7 [m]	C	OD
4130.1 [m]	C	OD
4134.6 [m]	C	OD
4134.6 [m]	C	OD
4139.5 [m]	C	OD
4141.4 [m]	C	OD
4143.0 [m]	C	MOBIL
4144.8 [m]	C	OD
4147.2 [m]	C	OD
4152.0 [m]	C	OD
4153.7 [m]	C	OD
4158.7 [m]	C	OD
4161.7 [m]	C	OD
4162.7 [m]	C	OD
4166.6 [m]	C	OD
4167.9 [m]	C	OD
4167.9 [m]	C	OD
4172.7 [m]	C	OD
4174.7 [m]	C	OD
4177.0 [m]	C	OD
4180.8 [m]	C	OD
4180.8 [m]	C	RRI
4181.3 [m]	C	OD
4182.4 [m]	C	OD
4183.6 [m]	C	RRI
4186.5 [m]	C	OD
4187.6 [m]	C	RRI
4189.4 [m]	C	OD
4191.2 [m]	C	RRI
4191.7 [m]	C	OD
4192.9 [m]	C	OD
4193.8 [m]	C	OD
4196.2 [m]	C	OD
4196.8 [m]	C	RRI
4198.2 [m]	C	OD



4200.5 [m]	C	OD
4201.8 [m]	C	OD
4205.5 [m]	C	OD
4207.5 [m]	C	OD
4209.0 [m]	C	OD
4209.5 [m]	C	OD
4210.0 [m]	C	RRI
4212.1 [m]	C	OD
4214.2 [m]	C	OD
4214.3 [m]	C	RRI
4216.1 [m]	C	OD
4217.9 [m]	C	OD
4218.5 [m]	C	RRI
4221.6 [m]	C	RRI
4221.9 [m]	C	OD
4223.2 [m]	C	OD
4225.8 [m]	C	OD
4226.3 [m]	C	RRI
4227.9 [m]	C	OD
4228.0 [m]	C	RRI
4228.6 [m]	C	OD
4230.0 [m]	C	RRI
4230.8 [m]	C	OD
4233.7 [m]	C	OD
4234.6 [m]	C	OD
4234.7 [m]	C	RRI
4234.8 [m]	C	RRI
4235.8 [m]	C	OD
4236.8 [m]	C	OD
4237.3 [m]	C	OD
4237.8 [m]	C	RRI
4241.0 [m]	C	OD
4242.1 [m]	C	RRI
4242.1 [m]	C	OD
4245.3 [m]	C	OD
4248.7 [m]	C	OD
4251.1 [m]	C	OD
4255.1 [m]	C	OD
4259.8 [m]	C	OD
4263.7 [m]	C	OD



4266.0 [m]	C	OD
4266.0 [m]	C	OD
4270.4 [m]	C	OD
4272.0 [m]	C	OD
4272.0 [m]	C	OD
4272.3 [m]	C	RRI
4272.4 [m]	C	OD
4275.4 [m]	C	OD
4278.7 [m]	C	RRI
4278.7 [m]	C	OD
4281.9 [m]	C	OD
4284.6 [m]	C	RRI
4285.0 [m]	C	OD
4287.6 [m]	C	OD
4290.6 [m]	C	OD
4293.6 [m]	C	OD
4294.4 [m]	C	RRI
4296.5 [m]	C	OD
4299.9 [m]	C	OD
4302.2 [m]	C	OD
4304.7 [m]	C	OD
4305.6 [m]	C	RRI
4307.8 [m]	C	OD

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	TEST1	4085.00	4095.00	CONDE NSATE	28.09.1985 - 16:35	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
164	NORDLAND GP
900	UTSIRA FM
1051	HORDALAND GP
1200	NO FORMAL NAME



1650	NO FORMAL NAME
1890	ROGALAND GP
1890	BALDER FM
1950	SELE FM
2011	LISTA FM
2028	NO FORMAL NAME
2070	LISTA FM
2109	SHETLAND GP
2109	JORSALFARE FM
2465	KYRRE FM
3450	TRYGGVASON FM
3550	BLODØKS FM
3565	SVARTE FM
3690	CROMER KNOLL GP
3690	RØDBY FM
3767	ÅSGARD FM
3862	VIKING GP
3862	DRAUPNE FM
3923	HEATHER FM
4084	BRENT GP
4084	TARBERT FM
4098	NESS FM
4243	ETIVE FM
4287	RANNOCH FM
4335	DUNLIN GP
4335	DRAKE FM
4413	COOK FM
4515	BURTON FM
4578	AMUNDSEN FM
4715	STATFJORD GP

Geochemical information

Document name	Document format	Document size [MB]
476_1	pdf	0.42
476_2	pdf	0.41
476_3	pdf	6.65



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

Document name	Document format	Document size [MB]
476_01_WDSS_General_Information	pdf	0.33
476_02_WDSS_completion_log	pdf	0.33

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

Document name	Document format	Document size [MB]
476_34_10_23_Completion_log	pdf	3.06
476_34_10_23_Completion_report_I	pdf	41.13
476_34_10_23_Completion_report_II	pdf	38.88

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	4085	4095	22.2

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0		28.000		

Test number	Oil [Sm ³ /day]	Gas [Sm ³ /day]	Oil density [g/cm ³]	Gas grav. rel.air	GOR [m ³ /m ³]
1.0	150	1700000	0.820	0.650	11400

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL CCL	900	3100
CBL VDL CCL	2200	3830
CBL VDL CCL	3300	4538
CST GR	4720	4749
DLL MSFL GR	4050	4761
ISF LSS MSFL GR	224	4764





LDL CNL GR	1239	4765
RFT GR	4084	4140
RFT GR	4084	4096
RFT GR	4084	4141
RFT GR	4176	4281
RFT GR	4435	4439
RFT GR	4715	4719
RFT GR	4716	4750
SHDT GR	3836	4485
VSP	224	4764

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	224.0	36	225.0	0.00	LOT
CONDUCTOR	30	225.0	36	227.0	0.00	LOT
SURF.COND.	20	1239.0	26	1252.0	1.69	LOT
INTERM.	13 3/8	3100.0	17 1/2	3118.0	1.91	LOT
INTERM.	13 3/8	3104.0	17 1/2	3115.0	1.91	LOT
INTERM.	9 5/8	3834.0	12 1/4	3850.0	2.13	LOT
LINER	7	4525.0	8 1/2	4525.0	2.20	LOT
OPEN HOLE		4764.0	5 7/8	4764.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
1161	1.65	29.0	3.9	WATER BASED	09.10.1985
2014	1.20	20.0	3.9	WATER BASED	21.05.1985
2054	1.25	17.0	3.9	WATER BASED	21.05.1985
2056	1.33	22.0	4.9	WATER BASED	21.05.1985
2283	1.34	24.0	5.4	WATER BASED	22.05.1985
2389	1.38	22.0	6.9	WATER BASED	23.05.1985
2743	1.45	55.0	9.0	WATER BASED	29.05.1985
2955	1.45	9.0	13.8	WATER BASED	29.05.1985
3115	1.45	14.0	8.9	WATER BASED	05.06.1985
3120	1.37	10.0	6.0	WATER BASED	10.06.1985
3503	1.73	25.0	10.0	WATER BASED	17.06.1985



3503	1.64	25.0	7.0	WATER BASED	14.06.1985
3503	1.73	25.0	10.0	WATER BASED	17.06.1985
3549	1.77	26.0	9.0	WATER BASED	17.06.1985
3789	1.81	56.0	11.0	WATER BASED	25.06.1985
3924	1.86	25.0	9.9	WATER BASED	16.07.1985
3963	1.92	28.0	4.9	WATER BASED	16.07.1985
4007	1.97	35.0	5.8	WATER BASED	16.07.1985
4080	2.05	41.0	6.9	WATER BASED	17.07.1985
4080	2.07	47.5	7.4	WATER BASED	18.07.1985
4080	2.07	47.5	7.4	WATER BASED	18.07.1985
4082	2.09	42.0	6.4	WATER BASED	19.07.1985
4100	2.06	29.0	3.9	WATER BASED	29.07.1985
4100	2.03	28.0	3.4	WATER BASED	29.07.1985
4100	2.03	28.0	3.4	WATER BASED	29.07.1985
4120	2.06	29.0	3.9	WATER BASED	25.09.1985
4308	2.01	33.0	5.4	WATER BASED	07.08.1985
4438	2.01	32.0	7.0	WATER BASED	16.09.1985
4490	2.04	33.0	5.9	WATER BASED	15.08.1985
4525	2.01	31.0	4.5	WATER BASED	19.08.1985
4569	1.98	30.0	4.9	WATER BASED	02.09.1985
4576	1.96	32.0	3.9	WATER BASED	02.09.1985

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
4285.55	[m]
4291.00	[m]
4295.94	[m]
4300.00	[m]
4306.80	[m]
4098.05	[m]
4104.05	[m]
4118.05	[m]
4137.22	[m]
4170.70	[m]
4187.67	[m]
4205.90	[m]
4239.64	[m]
4253.00	[m]
4261.12	[m]



4270.97	[m]
4281.56	[m]
4082.16	[m]
4089.40	[m]
4095.10	[m]
4186.55	[m]
4256.80	[m]
4275.00	[m]
4175.75	[m]
4282.25	[m]
4195.50	[m]
4190.65	[m]
4277.70	[m]
4302.80	[m]
4084.25	[m]
4131.00	[m]
4169.95	[m]
4130.60	[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]
476 Formation pressure (Formasjonstrykk)	pdf	0.21

