

**General information**

Wellbore name	6406/8-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Well name	6406/8-1
Seismic location	HB - 12 - 84 SP. 130
Production licence	131
Drilling operator	Elf Petroleum Norge AS
Drill permit	560-L
Drilling facility	VINNI
Drilling days	210
Entered date	15.09.1987
Completed date	11.04.1988
Release date	11.04.1990
Publication date	28.06.2007
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS SHOWS
Discovery wellbore	NO
Kelly bushing elevation [m]	27.0
Water depth [m]	348.0
Total depth (MD) [m RKB]	4910.0
Final vertical depth (TVD) [m RKB]	4900.0
Maximum inclination [°]	6.3
Bottom hole temperature [°C]	172
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	ÅRE FM
Geodetic datum	ED50
NS degrees	64° 21' 55.01" N
EW degrees	6° 26' 48.16" E
NS UTM [m]	7140372.60
EW UTM [m]	376765.25
UTM zone	32
NPDID wellbore	1136



Wellbore history

**General**

Block 6406/8 is located on the Haltenbanken offshore Mid-Norway, in the southwestern corner of the Halten Terrace, approximately 215 km west north west of Trondheim. The primary objective of exploration well 6406/8-1 was to test the hydrocarbon potential in the Middle Jurassic Fangst group and the Lower Jurassic Båt group (Ror and Tilje formations). Possible intra-Cretaceous sands related to a seismic marker were considered as second target. Well 6406/8-1 was the first well drilled on the licence. It is located on a domal structure at the Base Cretaceous Unconformity. The prognosed TD for the well was 5027 m.

Operations and results

Well 6406/8-1 was spudded with the semi-submersible installation SSDV Vinni on 15 September 1987 and drilled to final TD at 4914 m in the Early Jurassic Åre Formation. The well was drilled water based.

It was drilled initially to a total depth of 4942 m where it had penetrated the Fangst Group. The well kicked and the drill string was lost in the hole. Due to incomplete fishing operation a sidetracked well was drilled. The sidetrack was spudded on 22 January 1988 at 4262 m. The Fangst Group was once again penetrated and an intermediate logging was performed. Drilling commenced to 4914 m. Due to hazardous drilling with gains and stuck pipe it was agreed that 4914 m was to become the TD of this well. A final logging operation was made comprising FMT and RFT. The Fangst Group down to top Ile Formation was interpreted from data available from the first hole. Due to failed MWD and no wire line logs below 4500 m in the first hole the Båt Group is interpreted from the sidetrack. Horner corrected wire line log BHTs at TD gave a formation temperature of 172 deg C.

Some gas dissolved in water was tested in the Ile Formation; otherwise no moveable hydrocarbons were seen in the well. Dull yellow spots and weak pale green cut fluorescence was described on sandstone from 3145 to 3190 m. Dull orange fluorescence and no cut was described on sandstone from 3985 to 4000 m. Orange/bright orange fluorescence with whitish cut fluorescence was seen on limestone from 4045 to 4060 m. All along the cores from 4368 to 4493 m, 5 to 20 % spots on sandstone with dull orange direct fluorescence and pale milky cut fluorescence was seen.

Five cores were cut in the Fangst Group from 4370 m to 4499 m and one core was cut in the Båt Group, Ror Formation from 4649.5 m to 4659 m. No fluid samples were taken on wire line. The well was permanently abandoned on 11 April 1988 as a dry well with shows.

Testing

Two DST tests were performed in the well. DST 1 tested the Tilje Formation in the interval 4701 - 4718.0 m. It gave no flow to surface and all results showed a water bearing and tight formation. Maximum temperature during the 4 hours test was 161 deg C. DST 2 tested the Ile Formation between 4413.5 - 4453.5 m. The first two attempts (DST 2 and DST 2B) from this interval were aborted due to technical problems and bad weather. The third attempt (DST 2C) flowed ca 1050 Sm³ gas and 145 m³ water /day through a 16/64" choke. The gas gravity was 0.765 (air=1). Gas samples were taken in this test and analyses showed a gas containing 77% methane, 3% ethane, and 19% CO₂ (volume/volume). The maximum temperature was 166.3 deg C, which is ca 10 deg higher than a linear temperature gradient drawn from the log-derived BHT at TD.

Due to poor pressure recordings on wire line in the Fangst Group and uncertain formation water salinity, no test was performed in the Garn Formation.



Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1320.00	4905.00

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	4370.0	4388.5	[m]
2	4388.5	4416.0	[m]
3	4416.0	4443.8	[m]
4	4443.8	4471.7	[m]
5	4471.7	4498.6	[m]
6	4649.5	4658.9	[m]

Total core sample length [m]	138.0
Cores available for sampling?	YES

Core photos



4370-4375m



4375-4380m



4380-4385m



4385-4388m



4388-4389m



4393-4398m



4398-4403m



4403-4408m



4408-4413m



4413-4416m



4416-4421m



4421-4426m



4426-4431m



4431-4436m



4436-4441m



4441-4443m



4443-4448m



4448-4453m



4453-4458m



4458-4463m



4463-4468m



4468-4471m



4471-4476m



4476-4481m



4481-4486m



4486-4491m



4491-4496m



4496-4498m



4649-4654m



4654-4658m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
2590.0	[unknown]	DC	RRI
2610.0	[unknown]	DC	RRI
2630.0	[unknown]	DC	RRI
2650.0	[unknown]	DC	RRI
2670.0	[unknown]	DC	RRI
2690.0	[unknown]	DC	RRI
2710.0	[unknown]	DC	RRI
2730.0	[unknown]	DC	RRI
2750.0	[unknown]	DC	RRI



2770.0	[unknown]	DC	RRI
2790.0	[unknown]	DC	RRI
2810.0	[unknown]	DC	RRI
2830.0	[unknown]	DC	RRI
2850.0	[unknown]	DC	OD
2870.0	[unknown]	DC	RRI
2890.0	[unknown]	DC	RRI
2910.0	[unknown]	DC	RRI
2930.0	[unknown]	DC	RRI
2950.0	[unknown]	DC	OD
2970.0	[unknown]	DC	RRI
2990.0	[unknown]	DC	RRI
3010.0	[unknown]	DC	RRI
3040.0	[unknown]	DC	RRI
3050.0	[unknown]	DC	OD
3070.0	[unknown]	DC	RRI
3090.0	[unknown]	DC	RRI
3110.0	[unknown]	DC	RRI
3130.0	[unknown]	DC	RRI
3150.0	[unknown]	DC	OD
3170.0	[unknown]	DC	RRI
3190.0	[unknown]	DC	RRI
3210.0	[unknown]	DC	RRI
3230.0	[unknown]	DC	RRI
3250.0	[unknown]	DC	OD
3270.0	[unknown]	DC	RRI
3290.0	[unknown]	DC	RRI
3310.0	[unknown]	DC	RRI
3330.0	[unknown]	DC	RRI
3350.0	[unknown]	DC	OD
3370.0	[unknown]	DC	RRI
3390.0	[unknown]	DC	RRI
3410.0	[unknown]	DC	RRI
3430.0	[unknown]	DC	RRI
3450.0	[unknown]	DC	OD
3470.0	[unknown]	DC	RRI
3490.0	[unknown]	DC	RRI
3510.0	[unknown]	DC	RRI
3530.0	[unknown]	DC	RRI
3550.0	[unknown]	DC	OD



3570.0	[unknown]	DC	RRI
3590.0	[unknown]	DC	RRI
3610.0	[unknown]	DC	RRI
3630.0	[unknown]	DC	RRI
3650.0	[unknown]	DC	OD
3670.0	[unknown]	DC	RRI
3690.0	[unknown]	DC	RRI
3710.0	[unknown]	DC	RRI
3730.0	[unknown]	DC	RRI
3750.0	[unknown]	DC	OD
3770.0	[unknown]	DC	RRI
3790.0	[unknown]	DC	RRI
3810.0	[unknown]	DC	RRI
3830.0	[unknown]	DC	RRI
3850.0	[unknown]	DC	OD
3870.0	[unknown]	DC	RRI
3890.0	[unknown]	DC	RRI
3910.0	[unknown]	DC	RRI
3925.0	[unknown]	DC	RRI
3950.0	[unknown]	DC	OD
3970.0	[unknown]	DC	RRI
3990.0	[unknown]	DC	RRI
4010.0	[unknown]	DC	RRI
4030.0	[unknown]	DC	RRI
4050.0	[unknown]	DC	OD
4070.0	[unknown]	DC	RRI
4090.0	[unknown]	DC	RRI
4110.0	[unknown]	DC	
4150.0	[unknown]	DC	OD
4250.0	[unknown]	DC	OD
4460.8	[unknown]	C	
4650.4	[unknown]	C	
4650.4	[unknown]	C	
4658.9	[unknown]	C	
4658.9	[unknown]	C	I.S.P.G

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	DST2C	0.00	0.00			YES
DST	DST2C	4453.50	4413.50	WATER	26.03.1988 - 20:15	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
375	NORDLAND GP
375	NAUST FM
1746	KAI FM
2330	HORDALAND GP
2330	BRYGGE FM
2597	ROGALAND GP
2597	TARE FM
2705	TANG FM
2752	SHETLAND GP
3963	CROMER KNOLL GP
4099	VIKING GP
4099	MELKE FM
4266	FANGST GP
4266	GARN FM
4313	NOT FM
4366	ILE FM
4493	BÅT GP
4493	ROR FM
4667	TILJE FM
4895	ÅRE FM

Composite logs

Document name	Document format	Document size [MB]
1136	pdf	0.82





Geochemical information

Document name	Document format	Document size [MB]
1136_1	pdf	0.10
1136_2	pdf	0.72
1136_3	pdf	1.90

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

Document name	Document format	Document size [MB]
1136_01_WDSS_General_Information	pdf	0.31
1136_02_WDSS_completion_log	pdf	0.29

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

Document name	Document format	Document size [MB]
1136_6406_8_1_COMPLETION_REPORT_AND_LOG	pdf	26.82

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	4718	4711	6.3
2.0	4413	4453	9.5

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0	71.000	48.000		
2.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0					
2.0					





Logs

Log type	Log top depth [m]	Log bottom depth [m]
ACBL VDL GR	375	4195
BHC GR	4195	4282
CDL	1300	4191
CDL CN GR	4195	4497
CDL CN GR	4360	4907
CN GR	4334	4497
COREGUN GR	1453	2623
COREGUN GR	2660	3585
COREGUN GR	3610	4205
DIFL AC GR	4195	4911
DIFL BHC GR	371	1136
DIFL BHC GR	1300	4497
DIPLOG	2631	4207
DIPLOG	4195	4911
DLL MLL GR	4361	4642
FMT HP	4368	4465
MWD	430	4825
RFT	4671	4713
VELOCITY	675	4900

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	436.0	36	477.0	1.10	LOT
SURF.COND.	20	1301.0	26	1316.0	1.50	LOT
INTERM.	13 3/8	2635.0	17 1/2	2650.0	1.85	LOT
INTERM.	9 5/8	4195.0	12 1/2	4210.0	2.09	LOT
INTERM.	7	4640.0	8 1/2	4649.0	2.05	LOT
LINER	5	4914.0	6	4914.0	0.00	LOT

Drilling mud



Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
815	1.08	26.0	8.8	WATER BASED	19.05.1987
1805	1.30	34.0	5.8	WATER BASED	05.10.1987
2110	1.31	28.0	5.8	WATER BASED	05.10.1987
2236	1.35	36.0	10.7	WATER BASED	06.10.1987
2320	1.40	31.0	8.8	WATER BASED	08.10.1987
2444	1.40	36.0	9.8	WATER BASED	08.10.1987
2770	1.65	33.0	7.8	WATER BASED	16.10.1987
2956	1.65	40.0	10.7	WATER BASED	19.10.1987
2969	1.72	26.0	7.8	WATER BASED	19.10.1987
3095	1.72	34.0	7.8	WATER BASED	20.10.1987
3126	1.75	38.0	10.7	WATER BASED	21.10.1987
3190	1.75	28.0	8.3	WATER BASED	22.10.1987
3195	1.75	32.0	8.8	WATER BASED	23.10.1987
3264	1.75	38.0	8.3	WATER BASED	26.10.1987
3355	1.74	36.0	9.3	WATER BASED	26.10.1987
3442	1.75	37.0	11.2	WATER BASED	26.10.1987
3497	1.75	36.0	12.2	WATER BASED	27.10.1987
3526	1.75	42.0	11.7	WATER BASED	28.10.1987
3584	1.75	38.0	8.8	WATER BASED	29.10.1987
3655	1.75	38.0	10.7	WATER BASED	30.10.1987
3734	1.75	38.0	9.8	WATER BASED	02.11.1987
3802	1.75	35.0	9.8	WATER BASED	02.11.1987
3886	1.75	36.0	10.7	WATER BASED	03.11.1987
3933	1.75	35.0	10.7	WATER BASED	03.11.1987
3958	1.75	38.0	9.8	WATER BASED	05.11.1987
4015	1.75	38.0	10.7	WATER BASED	06.11.1987
4130	1.75	37.0	9.8	WATER BASED	09.11.1987
4200	1.75	36.0	9.8	WATER BASED	09.11.1987
4219	1.57	35.0	8.3	WATER BASED	18.11.1987
4262	1.57	28.0	10.7	WATER BASED	19.11.1987
4286	1.57	35.0	7.8	WATER BASED	20.11.1987
4301	1.57	31.0	6.8	WATER BASED	23.11.1987
4349	1.57	33.0	7.8	WATER BASED	23.11.1987
4351	1.57	34.0	7.8	WATER BASED	23.11.1987
4351	1.57	37.0	7.3	WATER BASED	24.11.1987
4443	1.57	36.0	8.8	WATER BASED	26.11.1987
4443	1.65	33.0	6.8	WATER BASED	27.11.1987



4450	1.84	68.0	11.7	WATER BASED	27.01.1988
4472	1.68	39.0	7.8	WATER BASED	30.11.1987
4555	1.77	46.0	5.8	WATER BASED	07.12.1987
4578	1.84	66.0	14.7	WATER BASED	28.01.1988
4616	1.77	45.0	10.7	WATER BASED	07.12.1987
4649	1.84	66.0	13.7	WATER BASED	29.01.1988
4649	1.77	42.0	17.6	WATER BASED	07.12.1987
4668	1.77	45.0	10.7	WATER BASED	09.12.1987
4751	1.77	60.0	2.9	WATER BASED	10.12.1987
4752	1.84	78.0	15.6	WATER BASED	08.02.1988
4760	1.77	46.0	11.7	WATER BASED	11.12.1987
4763	1.77	42.0	10.7	WATER BASED	14.12.1987
4786	1.77	34.0	13.7	WATER BASED	14.12.1987
4852	1.84	68.0	13.7	WATER BASED	09.02.1988
4901	1.78	48.0	8.8	WATER BASED	15.12.1987
4914	1.84	63.0	14.7	WATER BASED	10.02.1988
4926	1.77	56.0	11.7	WATER BASED	16.12.1987
4942	1.79	43.0	9.8	WATER BASED	17.12.1987

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]
1136 Formation pressure (Formasjonstrykk)	pdf	0.27

