

**General information**

Wellbore name	6506/12-11 S
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORWEGIAN SEA
Field	ÅSGARD
Discovery	6506/12-1 Smørbukk
Well name	6506/12-11
Seismic location	3 D HWM-94: INLINE 4188 & CROSSLINE 1678
Production licence	094
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	849-L
Drilling facility	TRANSOCEAN SEARCHER
Drilling days	92
Entered date	08.06.1996
Completed date	07.09.1996
Release date	07.09.1998
Publication date	24.09.2002
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	EARLY JURASSIC
1st level with HC, formation	TILJE FM
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	ÅRE FM
Kelly bushing elevation [m]	22.0
Water depth [m]	289.0
Total depth (MD) [m RKB]	5268.0
Final vertical depth (TVD) [m RKB]	4843.0
Maximum inclination [°]	33.2
Bottom hole temperature [°C]	167
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	ÅRE FM
Geodetic datum	ED50
NS degrees	65° 5' 7.2" N



EW degrees	6° 40' 54.75" E
NS UTM [m]	7220144.87
EW UTM [m]	391047.42
UTM zone	32
NPDID wellbore	2795

Wellbore history

General

The well 6506/12-11 S was planned to be completed as a future producer. The main objectives of the well were to collect data on reservoir quality and fluid distribution, perform a long-term test to evaluate the continuity of the reservoir in the Tilje Formation, carry out an interference test between this well and an adjacent gas injector, 6506/11-5 S, and to investigate the effect of stimulation by fracturing on well productivity.

Operations and results

The deviated appraisal well 6506/12-11 S was spudded on 8 June 1996 with the semi-submersible installation "Transocean Searcher" and drilled to a TD of 5268 m (4842.5 m TVD), approximately 60 m into the Åre Formation. Drilling was interrupted for 11 days by a labour conflict. The well was drilled with seawater and high viscosity pills down to 621 m, Anco 2000 mud with glycol from 621 to 2242 m, and with oil based Anco vert from 2242 m to TD. The well penetrated the top of the Tilje Formation and the Åre Formation, respectively, 18 m and 9.5 m shallower than prognosed. Both the Tilje and the Åre Formations were hydrocarbon bearing. Two tests were performed, one in Åre and one in Tilje. In addition, a minifrac test was performed in the Åre Formation. Six cores (196 m, 187 m recovered) were cut in the Tilje and Åre Formations. Three MDT wireline samples were taken in the well, one from each of the formations Åre, Tilje, and Garn. The samples from the Tilje and Åre Formations contained oil and gas, while the sample from the Garn Formation, contained formation water. A 7" liner was run and cemented on 9 August 1996. After testing, well 6506/12-11 S was suspended on 7 September 1996 as an oil appraisal well. The well was re-entered (6506/12-11 SR) on 11 November 1996 for an extended test. Well 6506/12-11 SR was suspended as an oil appraisal well on 1 February 1997 and re-classed to development well 6506/12-I-4 H.

Testing

Test 1 in 6506/12-11 S was carried out over the interval 5226 - 5235.5 m in Åre and flowed with a rate of 685 Sm³/day oil and 453000 Sm³/day gas. Test 2 in 6506/12-11 S was carried out over the interval 5197.5 - 5206.5 m in Tilje and flowed with a rate of 470 Sm³/day oil and 173900 Sm³/day gas. The testing in 6506/12-11 SR consisted of a prefrac test in Tilje 1.1 followed by a massiv hydraulic stimulation and clean up with coiled tubing prior to start the extended well test. Most of the produced oil during the well test was recovered by the floating production, storage and testing vessel "Crystal Sea". When offloading Crystal Sea at Mongstad, the oil was burnt off at the installation.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
3640.00	5267.00

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	5041.0	5054.7	[m]
2	5063.0	5116.8	[m]
3	5117.0	5146.0	[m]
4	5146.0	5166.8	[m]
5	5167.0	5212.7	[m]
6	5212.7	5237.0	[m]

Total core sample length [m]	187.3
Cores available for sampling?	YES

Core photos



5041-5046m



5046-5051m



5051-5054m



5063-5068m



5068-5073m



5073-5078m



5078-5083m



5083-5088m



5088-5093m



5093-5098m



5098-5103m



5103-5108m



5108-5113m



5113-5117m



5117-5122m



5122-5127m



5127-5132m



5132-5137m



5137-5142m



5142-5146m



5146-5151m



5151-5156m



5156-5161m



5161-5166m



5166-5167m



5167-5172m



5172-5177m



5177-5182m



5182-5187m



5187-5192m



5192-5197m



5197-5202m



5202-5207m



5207-5212m



5212-5213m



5213-5217m



5217-5222m



5222-5227m



5227-5232m



5232-5237m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
3640.0	[m]	DC	RRI
3660.0	[m]	DC	RRI
3680.0	[m]	DC	RRI



3690.0	[m]	DC	RRI
3710.0	[m]	DC	RRI
3720.0	[m]	DC	RRI
3750.0	[m]	DC	RRI
3760.0	[m]	DC	RRI
3780.0	[m]	DC	RRI
3790.0	[m]	DC	RRI
3810.0	[m]	DC	RRI
3830.0	[m]	DC	RRI
3840.0	[m]	DC	RRI
3860.0	[m]	DC	RRI
3870.0	[m]	DC	RRI
3890.0	[m]	DC	RRI
3900.0	[m]	DC	RRI
3920.0	[m]	DC	RRI
3930.0	[m]	DC	RRI
3950.0	[m]	DC	RRI
3970.0	[m]	DC	RRI
3980.0	[m]	DC	RRI
4000.0	[m]	DC	RRI
4020.0	[m]	DC	RRI
4030.0	[m]	DC	RRI
4050.0	[m]	DC	RRI
4060.0	[m]	DC	RRI
4080.0	[m]	DC	RRI
4090.0	[m]	DC	RRI
4110.0	[m]	DC	RRI
4120.0	[m]	DC	RRI
4140.0	[m]	DC	RRI
4150.0	[m]	DC	RRI
4170.0	[m]	DC	RRI
4185.0	[m]	DC	RRI
4200.0	[m]	DC	RRI
4215.0	[m]	DC	RRI
4230.0	[m]	DC	RRI
4250.0	[m]	DC	RRI
4265.0	[m]	DC	RRI
4280.0	[m]	DC	RRI
4335.0	[m]	DC	RRI
4350.0	[m]	DC	RRI



4365.0 [m]	DC	RRI
4380.0 [m]	DC	RRI
4395.0 [m]	DC	RRI
4410.0 [m]	DC	RRI
4425.0 [m]	DC	RRI
4440.0 [m]	DC	RRI
4455.0 [m]	DC	RRI
4470.0 [m]	DC	RRI
4485.0 [m]	DC	RRI
4500.0 [m]	DC	RRI
4515.0 [m]	DC	RRI
4530.0 [m]	DC	RRI
4545.0 [m]	DC	RRI
4551.0 [m]	DC	RRI
4560.0 [m]	DC	RRI
4566.0 [m]	DC	RRI
4578.0 [m]	DC	RRI
4584.0 [m]	DC	RRI
4587.0 [m]	DC	RRI
4590.0 [m]	DC	RRI
4596.0 [m]	DC	RRI
4611.0 [m]	DC	RRI
4626.0 [m]	DC	RRI
4644.0 [m]	DC	RRI
4656.0 [m]	DC	RRI
4665.0 [m]	DC	RRI
4674.0 [m]	DC	RRI
4683.0 [m]	DC	RRI
4692.0 [m]	DC	RRI
4704.0 [m]	DC	RRI
4713.0 [m]	DC	RRI
4722.0 [m]	DC	RRI
4731.0 [m]	DC	RRI
4740.0 [m]	DC	RRI
4749.0 [m]	DC	RRI
4761.0 [m]	DC	RRI
4770.0 [m]	DC	RRI
4782.0 [m]	DC	RRI
4791.0 [m]	DC	RRI
4800.0 [m]	DC	RRI



4809.0 [m]	DC	RRI
4818.0 [m]	DC	RRI
4827.0 [m]	DC	RRI
4836.0 [m]	DC	RRI
4845.0 [m]	DC	RRI
4854.0 [m]	DC	RRI
4860.0 [m]	DC	RRI
4869.0 [m]	DC	RRI
4878.0 [m]	DC	RRI
4887.0 [m]	DC	RRI
4896.0 [m]	DC	RRI
4905.0 [m]	DC	RRI
4914.0 [m]	DC	RRI
4922.0 [m]	DC	RRI
4932.0 [m]	DC	RRI
4941.0 [m]	DC	RRI
4950.0 [m]	DC	RRI
4959.0 [m]	DC	RRI
4968.0 [m]	DC	RRI
4977.0 [m]	DC	RRI
4986.0 [m]	DC	RRI
4995.0 [m]	DC	RRI
5001.0 [m]	DC	RRI
5007.0 [m]	DC	RRI
5013.0 [m]	DC	RRI
5019.0 [m]	DC	RRI
5025.0 [m]	DC	RRI
5031.0 [m]	DC	RRI
5037.0 [m]	DC	RRI
5041.8 [m]	C	RRI
5050.4 [m]	C	RRI
5054.5 [m]	C	RRI
5063.2 [m]	C	RRI
5065.6 [m]	C	RRI
5072.1 [m]	C	RRI
5076.5 [m]	C	RRI
5082.1 [m]	C	RRI
5087.7 [m]	C	RRI
5096.4 [m]	C	RRI
5096.7 [m]	C	RRI



5102.8	[m]	C	RRI
5108.8	[m]	C	RRI
5116.4	[m]	C	RRI
5122.5	[m]	C	RRI
5128.5	[m]	C	RRI
5134.6	[m]	C	RRI
5139.4	[m]	C	RRI
5143.0	[m]	C	RRI
5146.7	[m]	C	RRI
5152.7	[m]	C	RRI
5158.5	[m]	C	RRI
5163.9	[m]	C	RRI
5169.4	[m]	C	RRI
5224.4	[m]	C	RRI
5229.0	[m]	C	RRI
5232.6	[m]	C	RRI
5236.8	[m]	C	RRI

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	DST1	0.00	0.00		23.08.1996 - 09:30	YES
DST	DST2	0.00	0.00		03.09.1996 - 05:30	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
311	NORDLAND GP
1523	KAI FM
2027	HORDALAND GP
2027	BRYGGE FM
2372	ROGALAND GP
2372	TARE FM
2464	TANG FM
2540	SHETLAND GP
2540	SPRINGAR FM



2813	NISE FM
3002	KVITNOS FM
3681	CROMER KNOLL GP
3681	LYSING FM
3728	LANGE FM
4554	LYR FM
4577	VIKING GP
4577	SPEKK FM
4590	MELKE FM
4731	FANGST GP
4731	GARN FM
4804	NOT FM
4835	ILE FM
4901	BÅT GP
4901	ROR FM
4980	TOFTE FM
5026	ROR FM
5042	TILJE FM
5211	ÅRE FM

Composite logs

Document name	Document format	Document size [MB]
2795	pdf	0.61

Geochemical information

Document name	Document format	Document size [MB]
2795_1	pdf	1.00

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

Document name	Document format	Document size [MB]
2795_6506_12_11_S_COMPLETION_REPORT_AND_COMPLETION_LOG	pdf	44.41



**Drill stem tests (DST)**

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	5236	5226	20.6
2.0	5207	5198	19.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0		12.000		162
2.0		73.000		162

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	690	453000	0.840		656
2.0	470	173900	0.831	0.775	360

Logs

Log type	Log top depth [m]	Log bottom depth [m]
6CAL CHT GR	2207	4730
DIFL MAC CHT GR	4735	5271
DPR	617	4756
FMT VPC CHT GR	3709	4369
MAC HXDIP GR	3600	5270
MDT GR	4768	5230
MRIL CHT GR	4736	5233
TRIPLE COMBO	4756	5264
VSP GR	1825	5260
ZDL CN CHT GR	3590	5275

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	370.0	36	370.0	0.00	LOT
INTERM.	20	617.0	26	618.0	1.40	LOT



INTERM.	13 3/8	2227.0	17 1/2	2230.0	1.87	LOT
INTERM.	9 5/8	4739.0	12 1/4	4739.0	0.00	LOT
OPEN HOLE		5268.0	8 1/2	5268.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
1070	1.25			DUMMY	
1720	1.28			DUMMY	
2242	1.36	18.0		ANCO 2000	
2340	1.65	65.0		ANCO VERT	
2560	1.66	52.0		ANCO VERT	
3980	1.76	59.0		ANCO VERT	
3986	1.66	52.0		ANCO VERT	
4326	1.72	54.0		ANCO VERT	
4548	1.76	56.0		ANCO VERT	
4619	1.76	55.0		ANCO VERT	
4727	1.76	57.0		ANCO VERT	
4756	1.76	56.0		ANCO VERT	
4790	1.20			DUMMY	
4790	1.20	18.0		ANCO VERT	
4802	1.20	30.0		ANCO VERT	
4831	1.20	29.0		ANCO VERT	
4950	1.20			DUMMY	
4953	1.20	23.0		ANCO VERT	
4999	1.20	25.0		ANCO VERT	
5041	1.20	27.0		ANCO VERT	
5063	1.20	18.0		ANCO VERT	
5117	1.20			DUMMY	
5146	1.20			DUMMY	
5212	1.20			DUMMY	
5237	1.20			DUMMY	
5268	1.20	30.0		ANCO VERT	
5268	1.20			DUMMY	

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]
2795 Formation pressure (Formasjonstrykk)	pdf	0.30

