



Generell informasjon

Brønnbane navn	6506/12-10 A
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORWEGIAN SEA
Felt	ÅSGARD
Funn	6506/12-1 Smørbukk
Brønn navn	6506/12-10
Seismisk lokalisering	ST 8801- INLINE SP 920 & CROSSLINE SP 94
Utvinningstillatelse	094
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	817-L
Boreinnretning	ROSS RIG (2)
Boredager	168
Borestart	27.06.1995
Boreslutt	11.12.1995
Frigitt dato	11.12.1997
Publiseringsdato	24.09.2002
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL/GAS
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	FANGST GP
2. nivå med hydrokarboner, alder	EARLY JURASSIC
2. nivå med hydrokarboner, formasjon	BÅT GP
Avstand, boredekk - midlere havflate [m]	24.0
Vanndybde ved midlere havflate [m]	285.0
Totalt målt dybde (MD) [m RKB]	6260.0
Totalt vertikalt dybde (TVD) [m RKB]	5361.0
Maks inklinasjon [°]	57.7
Temperatur ved bunn av brønnbanen [°C]	189
Eldste penetrerte alder	EARLY JURASSIC



Eldste penetrerte formasjon	ÅRE FM
Geodetisk datum	ED50
NS grader	65° 8' 7.82" N
ØV grader	6° 49' 6.47" E
NS UTM [m]	7225505.52
ØV UTM [m]	397658.22
UTM sone	32
NPDID for brønnbanen	2610

Brønnhistorie

**General**

The main objective of well 6506/12-10 A was to appraise the down flanks hydrocarbons in the Garn, Ile, Tilje, and the Åre Formation, on the Smørbukk Field.

Operations and results

The appraisal sidetrack well 6506/12-10 A was kicked off with the semi-submersible installation "Ross Rig" from 2823 m in 6506/12-10 on 25 June 1995 and drilled to 6260 m with a total cost considerably higher than planned budget. The higher costs were mainly due to kick off and orienting problems from the vertical well, lots of trips to change bits, milling cones lost in the 12 1/4" hole and problems cementing the 7" liner. In general the drilling rate was lower than expected. Oil based mud (ANCO VERT) was used through out the sidetrack. High mud weight (1.80 g/cm³) was used in the beginning to prevent formation damage during drilling. This can have caused lower ROP than expected. Prior to testing, a lot of leakage problems occurred within the test string mainly due to bad quality of the o-rings in the Halliburton test-valves. The string was pulled and reran 5 times before all the problems were sorted out. Total lost times in the test phase was 893 hrs (squeeze cementing of 7" liner, leak in BHA of the test string, BOP problems, WOW, fishing of packer slips).

Eleven cores were cut in the Tilje and Åre Formations. Two FMT samples were taken in the Garn Formation (4397.7 m TVD and 4402.7 m TVD, respectively) and one in the Tilje Formation (4806.8 m TVD). The Garn samples contained water while the Tilje sample contained oil. The 6506/12-10A well proved producible oil in the Garn, Ile, Tilje and upper parts of the Åre Formations in good sand intervals. After testing the well 6506/12-10 A was permanently plugged and abandoned on 11 December 1995 as an oil and gas appraisal well.

Testing

The test plan included short tests of the Åre and Tilje Formations followed by a long term production period. Thereafter a minifrac from the rig plus a massive stimulation job of the Tilje Formation should be performed. The objectives for this operations was to try to establish the productivity improvements from a massive stimulation, and thereby more accurate be able to evaluate the production potential for the Tilje Formation within the Smørbukk field. Due to problems during cementing of the 7" liner, severe zone isolation problems occurred and the Åre test was abandoned for the more important Tilje test. The production test of well 6506/12-10 A perforated the interval 5686 m to 5706 m (4793 m to 4813 m TVD RKB) in the Tilje Formation. The Tilje test started, but it became more or less obvious during the test that it was the Åre formation that was producing 90 -100 % of the fluid and Tilje only contributed with a very small amount of fluid. Later analysis of test results, PVT analysis, comparison of FMT data from earlier wells and this well, confirm that it was the Åre formation that was produced during the test, and that the cement bound between the Åre and Tilje was broken down during the test. At the end of the test a minifrac was performed in the perforated interval to indicate stress level in the Tilje formation. The test was ended after two shiploads of oil were sent to Mongstad, and within the time budget.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
2800.00	6260.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	5674.0	5711.5	[m]
2	5711.5	5748.4	[m]
3	5948.0	5948.5	[m]
4	5959.0	5971.2	[m]
5	5972.0	5984.7	[m]
6	5986.0	6005.0	[m]
7	6038.0	6057.0	[m]
8	6057.0	6060.7	[m]
9	6119.0	6128.6	[m]
10	6160.0	6178.0	[m]
11	6223.0	6230.5	[m]

Total kjerneprøve lengde [m]	176.4
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



5674-5679m



5679-5684m



5684-5689m



5689-5694m



5694-5699m



5699-5704m



5704-5709m



5709-5712m



5712-5716m



5716-5721m



5721-5726m



5721-5731m



5731-5736m



5736-5741m



5741-5746m



5746-5748m



5948-5949m



5959-5964m



5964-5969m



5969-5971m



5972-5977m



5977-5982m



5986-5991m



5982-5985m



5991-5996m



5996-6001m



6001-6005m



6038-6043m



6043-6048m



6048-6053m



6053-6057m



6057-6060m



6119-6124m



6124-6128m



6160-6165m



6165-6170m



6170-6175m



6175-6178m



6223-6228m



6228-6231m



Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	TEST1	0.00	0.00		28.10.1995 - 13:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
309	NORDLAND GP
1452	KAI FM
1914	HORDALAND GP
1914	BRYGGE FM
2227	ROGALAND GP
2227	TARE FM
2315	TANG FM
2384	SHETLAND GP
2384	SPRINGAR FM
2555	NISE FM
2848	KVITNOS FM
3457	CROMER KNOLL GP
3457	LYSING FM
3580	LANGE FM
4833	LYR FM
4901	VIKING GP
4901	SPEKK FM
4966	MELKE FM
5246	FANGST GP
5246	GARN FM
5305	NOT FM
5338	ILE FM
5416	BÅT GP
5416	ROR FM
5468	TOFTE FM
5524	ROR FM
5552	TILJE FM



5711 [ÅRE FM](#)

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
2610	pdf	0.46

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
2610_1	pdf	1.19
2610_2	pdf	1.12

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
2610_6506_12_10_A_COMPLETION_REPORT_AND_LOG	pdf	33.51

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	5707	5686	19.0

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0		22.000		165

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0	450	168750	0.810		375





Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
4-ARM CAL GR	2780	3477
CBL VDL GR	5637	5776
DCBIL GR	5260	6202
DPIL MAC SLH TTRM	5845	6259
DPIL MAC ZDL CN GR	5248	5552
DPIL MAC ZDL CN SLH TTRM	5249	5878
FMT QDYNE GR	5273	5842
FMT VPC CHT GR	5926	6197
MND DPR	5260	5553
MRIL XDL DN DSL	5248	5880
MWD DPR	2780	5260
MWD DPR	5553	5781
ZDL CN TTRM GR	5845	6259
ZOVSP GR	2800	6175

Foringsrør og formasjonsstyrketester

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm3]	Type formasjonstest
INTERM.	9 5/8	5248.0	12 1/4	5250.0	0.00	LOT
LINER	7	6260.0	8 1/2	6260.0	1.80	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
2810	1.80	58.0	12.0	OIL BASED	06.07.1995
2810	1.80	58.0	12.5	OIL BASED	11.07.1995
2810	1.76	56.0	10.0	OIL BASED	11.07.1995
2810	1.74	57.0	11.0	OIL BASED	11.07.1995
2810	1.70	52.0	10.0	OIL BASED	11.07.1995
2810	1.70	53.0	10.0	OIL BASED	12.07.1995
2810	1.70	48.0	9.0	OIL BASED	14.07.1995
2810	1.70	47.0	9.5	OIL BASED	14.07.1995
2810	1.70	46.0	9.5	OIL BASED	17.07.1995



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 15.5.2024 - 18:24

2810	1.70	47.0	9.0	OIL BASED	17.07.1995
2810	1.70	44.0	9.0	OIL BASED	17.07.1995
2810	1.70	40.0	8.5	OIL BASED	18.07.1995
2810	1.70	43.0	8.0	OIL BASED	19.07.1995
2810	1.70	41.0	8.0	OIL BASED	20.07.1995
2810	1.80	59.0	10.5	OIL BASED	03.07.1995
2810	1.80	58.0	11.5	OIL BASED	04.07.1995
2810	1.76	53.0	10.0	OIL BASED	11.07.1995
2820	1.66	47.0	8.5	OIL BASED	28.06.1995
2820	1.70	44.0	8.0	OIL BASED	30.06.1995
2820	1.80	56.0	9.5	OIL BASED	03.07.1995
2820	1.80	60.0	11.5	OIL BASED	03.07.1995
2859	1.66	44.0	8.0	OIL BASED	29.06.1995
2965	1.70	44.0	8.0	OIL BASED	30.06.1995
3109	1.80	56.0	9.5	OIL BASED	03.07.1995
3221	1.80	60.0	11.5	OIL BASED	03.07.1995
3262	1.80	59.0	10.5	OIL BASED	03.07.1995
3301	1.80	58.0	11.5	OIL BASED	04.07.1995
3362	1.80	58.0	12.0	OIL BASED	06.07.1995
3363	1.80	58.0	12.5	OIL BASED	11.07.1995
3460	1.76	56.0	10.0	OIL BASED	11.07.1995
3465	1.76	53.0	10.0	OIL BASED	11.07.1995
3535	1.74	57.0	11.0	OIL BASED	11.07.1995
3643	1.70	52.0	10.0	OIL BASED	11.07.1995
3730	1.70	53.0	10.0	OIL BASED	12.07.1995
3775	1.70	48.0	9.0	OIL BASED	14.07.1995
3890	1.70	47.0	9.5	OIL BASED	14.07.1995
4099	1.70	46.0	9.5	OIL BASED	17.07.1995
4300	1.70	47.0	9.0	OIL BASED	17.07.1995
4430	1.70	44.0	9.0	OIL BASED	17.07.1995
4457	1.70	40.0	8.5	OIL BASED	18.07.1995
4670	1.70	43.0	8.0	OIL BASED	19.07.1995
4702	1.70	41.0	8.0	OIL BASED	20.07.1995
4900	1.75	48.0	9.5	OIL BASED	21.07.1995
4990	1.75	52.0	10.0	OIL BASED	24.07.1995
4990	1.75	50.0	10.0	OIL BASED	24.07.1995
4990	1.75	54.0	11.0	OIL BASED	25.07.1995
4990	1.75	51.0	10.0	OIL BASED	24.07.1995
4990	1.75	54.0	11.0	OIL BASED	26.07.1995
5041	1.77	51.0	10.0	OIL BASED	24.07.1995



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 15.5.2024 - 18:24

5076	1.78	52.0	10.0	OIL BASED	24.07.1995
5175	1.78	50.0	10.0	OIL BASED	24.07.1995
5245	1.20	25.0	7.0	OIL BASED	07.08.1995
5260	1.20	28.0	7.5	OIL BASED	07.08.1995
5260	1.20	28.0	7.0	OIL BASED	07.08.1995
5260	1.78	54.0	11.0	OIL BASED	25.07.1995
5260	1.78	54.0	11.0	OIL BASED	26.07.1995
5260	1.20	28.0	7.5	OIL BASED	08.08.1995
5260	1.20	29.0	8.0	OIL BASED	10.08.1995
5260	1.20	28.0	7.0	OIL BASED	10.08.1995
5260	1.20	28.0	7.5	OIL BASED	15.08.1995
5260	1.20	29.0	7.0	OIL BASED	15.08.1995
5260	1.20	29.0	7.5	OIL BASED	15.08.1995
5260	1.20	29.0	8.5	OIL BASED	17.08.1995
5260	1.20	30.0	7.5	OIL BASED	17.08.1995
5260	1.20	28.0	8.0	OIL BASED	17.08.1995
5260	1.21	27.0	7.0	OIL BASED	07.08.1995
5260	1.20	28.0	8.0	OIL BASED	18.08.1995
5273	1.20	28.0	8.0	OIL BASED	21.08.1995
5273	1.20	28.0	8.0	OIL BASED	21.08.1995
5273	1.20	28.0	8.0	OIL BASED	21.08.1995
5273	1.20	28.0	8.0	OIL BASED	22.08.1995
5273	1.20	31.0	9.0	OIL BASED	23.08.1995
5273	1.20	35.0	10.0	OIL BASED	29.08.1995
5273	1.20	36.0	10.0	OIL BASED	01.09.1995
5273	1.20	35.0	9.5	OIL BASED	30.08.1995
5280	1.21	24.0	6.0	OIL BASED	07.08.1995
5310	1.20	25.0	6.5	OIL BASED	07.08.1995
5345	1.20	26.0	7.5	OIL BASED	07.08.1995
5371	1.20	25.0	7.0	OIL BASED	07.08.1995
5379	1.20	26.0	7.5	OIL BASED	07.08.1995
5380	1.20	28.0	8.0	OIL BASED	21.08.1995
5432	1.20	27.0	7.0	OIL BASED	07.08.1995
5457	1.20	28.0	7.5	OIL BASED	07.08.1995
5499	1.20	28.0	7.0	OIL BASED	07.08.1995
5536	1.20	28.0	7.5	OIL BASED	08.08.1995
5553	1.20	29.0	8.0	OIL BASED	10.08.1995
5613	1.20	28.0	7.0	OIL BASED	10.08.1995
5645	1.20	28.0	7.5	OIL BASED	15.08.1995
5711	1.20	29.0	7.0	OIL BASED	15.08.1995



5737	1.20	28.0	8.0	OIL BASED	22.08.1995
5737	1.20	28.0	8.0	OIL BASED	21.08.1995
5737	1.20	31.0	9.0	OIL BASED	23.08.1995
5737	1.20	28.0	8.0	OIL BASED	21.08.1995
5753	1.20	29.0	7.5	OIL BASED	15.08.1995
5781	1.20	29.0	8.5	OIL BASED	17.08.1995
5846	1.20	30.0	7.5	OIL BASED	17.08.1995
5890	1.20	28.0	8.0	OIL BASED	17.08.1995
5890	1.20	32.0	9.0	OIL BASED	25.08.1995
5890	1.20	30.0	7.5	OIL BASED	29.08.1995
5890	1.20	33.0	9.0	OIL BASED	25.08.1995
5890	1.20	28.0	8.0	OIL BASED	18.08.1995
5893	1.20	29.0	8.5	OIL BASED	29.08.1995
5912	1.20	33.0	8.5	OIL BASED	29.08.1995
5948	1.20	35.0	10.0	OIL BASED	29.08.1995
5959	1.20	35.0	9.5	OIL BASED	30.08.1995
5972	1.20	36.0	10.0	OIL BASED	01.09.1995

Trykkplott

Porertrykksdataene kommer fra logging i brønnen hvis ingen annen kilde er oppgitt. I noen brønner der trykk ikke er logget, er det brukt informasjon fra formasjonstester eller brønnspark. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
2610 Formation pressure (Formasjonstrykk)	pdf	0.29

