



Generell informasjon

Brønnbane navn	6506/12-7
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	6506/12-7
Seismisk lokalisering	ST 8403 - 463 SP. 322
Utvinningstillatelse	094
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	544-L
Boreinnretning	DYVI DELTA
Boredager	101
Borestart	04.05.1987
Boreslutt	12.08.1987
Frigitt dato	12.08.1989
Publiseringsdato	28.06.2007
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	GAS/CONDENSATE
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	ILE FM
2. nivå med hydrokarboner, alder	EARLY JURASSIC
2. nivå med hydrokarboner, formasjon	TILJE FM
Avstand, boredekk - midlere havflate [m]	29.0
Vanndybde ved midlere havflate [m]	267.0
Totalt målt dybde (MD) [m RKB]	4840.0
Temperatur ved bunn av brønnbanen [°C]	167
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	TILJE FM
Geodetisk datum	ED50
NS grader	65° 10' 4.38" N



ØV grader	6° 54' 38.87" E
NS UTM [m]	7228966.15
ØV UTM [m]	402107.96
UTM sone	32
NPDID for brønnbanen	300

Brønnhistorie

**General**

Well 6506/12-7 was drilled as an exploration well on the Northeast Smørbukk structure. The primary purpose was to find hydrocarbon accumulations of significant amounts in the Middle and Early Jurassic sandstone reservoirs. Secondary objectives were to check for hydrocarbon accumulations deeper than the structural closure of the main field. The well should also verify the geophysical and structural interpretation and improve the geological, paleontological and geochemical understanding of the area. Total depth was to be in rocks of Triassic age or 4000 m in order to satisfy the licence commitment.

Operations and results

Well 6506/12-7 was spudded with the semi-submersible installation Dyvi Delta on 7 April 1987 and drilled to TD at 4840 m in the Early Jurassic Tilje Formation. Drilling proceeded without significant problems. The well was drilled with spud mud down to 597 m, with gypsum/polymer mud from 597 m to 4427 m, and with a pre-hydrated Bentonite/Lignosulphonate mud system from 4427 m to TD. No shallow gas was encountered.

The first show appeared in the Lange Formation at 3791 - 3794 m. During coring there were oil shows in Garn and Ile Formations, while Tilje only contained small traces of oil. Both cores and logs indicated that Garn and Ile Formations were hydrocarbon bearing down to ca 4538 m, while Tilje Formation was indicated to be water bearing. The porosity was assumed to be between 8 and 12 %. Mobil wanted to test the Tilje Formation to get a fluid sample to understand the logs better. This was a wise decision because the formation produced oil at very good rates. The Garn Formation on the other hand did not produce any formation fluid when tested. The oil/water contact in the Tilje Formation was not found because the logs did not give clear data.

Eight cores were cut in the well with a total recovery of 62.6 m core. One core was cut in the interval 4053 - 4058 m (Spekk Formation), two cores from 4427.5 to 4439.2 m (bas Garn Formation), four cores in the interval 4467 - 4502 m (Not-Ile Formations), and one core from 4672 to 4700 m (all of Ror Formation with base Tofte and top Tilje). RFT fluid samples were taken at 4420 m (Garn), 4496.5 m (Ile), and 4708 m (Tilje).

The well was permanently abandoned on 12 August 1987 as a gas/condensate appraisal.

Testing

Four DSTs were performed in this well.

DST 1 in the interval 4741 - 4748 m in the Tilje Formation produced 520 Sm³ condensate, 230000 Sm³ gas and no water through a 32/64" choke. The GOR was 442 Sm³/Sm³, the condensate density was 0.820 g/cm³, and the gas gravity was 0.770 (air = 1). Maximum down-hole temperature recorded in the test was 164 deg C.

DST 2 in the interval 4702 - 4707 m in the Tilje Formation produced 200 Sm³ condensate, 145000 Sm³ gas and no water through a 20/64" choke. The GOR was 725 Sm³/Sm³, the condensate density was 0.818 g/cm³, and the gas gravity was 0.785 (air = 1). Maximum down-hole temperature recorded in the test was 164 deg C.

DST 3 in the interval 4474 - 4514 m in the Ile Formation produced 70 Sm³ condensate, 110000 Sm³ gas and 4 - 20% water through a 20/64" choke. The GOR was 1570 Sm³/Sm³, the condensate density was 0.790 g/cm³, and the gas gravity was 0.745 (air = 1). Maximum down-hole temperature recorded in the test was 136 deg C.

DST 4 in the interval 4414 - 4439 m in the lower Garn Formation flowed 1.7 m³ fluids into the well bore. Only gas and mud came to surface during reverse circulation. No formation fluid was observed.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
610.00	4840.00
Borekaks tilgjengelig for prøvetaking?	YES

Borekjerper i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	4053.0	4053.5	[m]
2	4427.5	4435.5	[m]
3	4436.0	4439.1	[m]
4	4467.0	4468.1	[m]
5	4468.5	4475.8	[m]
6	4477.5	4483.0	[m]
7	4483.5	4502.5	[m]
8	4672.0	4700.0	[m]

Total kjerneprøve lengde [m]	72.6
Kjerper tilgjengelig for prøvetaking?	YES

Kjernebilder



4053-4430m



4430-4435m



4435-4439m



4461-4471m



4471-4475m



4477-4482m



4482-4487m



4487-4492m



4492-4497m



4497-4502m



4502-4676m



4676-4681m



4681-4686m



4686-4691m



4691-4696m



4696-4700m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
4388.0	[m]	DC	RRI
4394.0	[m]	DC	RRI
4397.0	[m]	DC	RRI
4412.0	[m]	DC	RRI
4418.0	[m]	DC	RRI
4424.0	[m]	DC	RRI
4439.0	[m]	C	RRI
4445.0	[m]	DC	RRI
4451.0	[m]	DC	RRI
4457.0	[m]	DC	RRI
4463.0	[m]	DC	RRI
4467.0	[m]	C	RRI
4505.0	[m]	DC	RRI
4511.0	[m]	DC	RRI
4517.0	[m]	DC	RRI
4523.0	[m]	DC	RRI
4529.0	[m]	DC	RRI
4535.0	[m]	DC	RRI
4541.0	[m]	DC	RRI
4547.0	[m]	DC	RRI
4559.0	[m]	DC	RRI
4565.0	[m]	DC	RRI
4571.0	[m]	DC	RRI



4577.0	[m]	DC	RRI
4583.0	[m]	DC	RRI
4589.0	[m]	DC	RRI
4595.0	[m]	DC	RRI
4601.0	[m]	DC	RRI
4607.0	[m]	DC	RRI
4613.0	[m]	DC	RRI
4619.0	[m]	DC	RRI
4625.0	[m]	DC	RRI
4631.0	[m]	DC	RRI
4637.0	[m]	DC	RRI
4643.0	[m]	DC	RRI
4655.0	[m]	DC	RRI
4661.0	[m]	DC	RRI
4781.0	[m]	DC	RRI
4787.0	[m]	DC	RRI
4793.0	[m]	DC	RRI
4799.0	[m]	DC	RRI
4805.0	[m]	DC	RRI
4811.0	[m]	DC	RRI
4818.0	[m]	DC	RRI
4823.0	[m]	DC	RRI
4829.0	[m]	DC	RRI

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	TEST1	4741.00	4748.00		18.07.1982 - 02:00	YES
DST	TEST2	4702.00	4707.00		24.07.1982 - 14:25	YES
DST	TEST3	4474.00	4512.00		30.07.1982 - 00:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
296	NORDLAND GP



1539	KAI FM
1856	HORDALAND GP
1856	BRYGGE FM
2227	ROGALAND GP
2227	TARE FM
2297	TANG FM
2396	SHETLAND GP
3265	CROMER KNOLL GP
3265	LYSING FM
3306	LANGE FM
4042	VIKING GP
4042	SPEKK FM
4114	MELKE FM
4396	FANGST GP
4396	GARN FM
4439	NOT FM
4474	ILE FM
4556	BÅT GP
4556	ROR FM
4629	TOFTE FM
4675	ROR FM
4693	TILJE FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
300	pdf	0.77

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
300_1	pdf	0.12
300_2	pdf	2.46
300_3	pdf	0.16
300_4	pdf	0.41





Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
300_01_WDSS_General_Information	pdf	0.44
300_02_WDSS_completion_log	pdf	0.37

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
300_6506_12_7_COMPLETION_REPORT_AND_LOG	pdf	30.60

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	4741	4748	12.7
2.0	4702	4707	7.9
3.0	4474	4514	15.9
4.0	4414	4439	0.0

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0				
3.0				
4.0				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0	520	145000	0.820	0.770	442
2.0	200	145000	0.818	0.785	725
3.0	70	110000	0.790	0.745	1571
4.0					





Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CDL CNL SPL GR	4387	4840
DIFL ACL CDL	589	4379
DIFL ACL GR	4200	4841
DLL MLL GR	4387	4841
HPFM	4420	4813
HPFM GR	4420	4705
HRDIP	4385	4840
MWD - GR RES DIR	410	3321
VELOCITY	270	4800

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
CONDUCTOR	30	406.5	36	410.0	0.00	LOT
SURF.COND.	20	589.0	26	596.0	1.51	LOT
INTERM.	13 3/8	2203.0	17 1/2	2221.0	1.81	LOT
INTERM.	9 5/8	4389.0	12 1/4	4427.0	1.80	LOT
LINER	7	4838.0	8 1/2	4840.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
463	1.45	1700.0	6.3	WATER BASED	11.08.1987
2050	1.65	1500.0	2.5	WATER BASED	10.08.1987
2221	1.45	1700.0	7.2	WATER BASED	21.05.1987
2450	1.62	2100.0	6.7	WATER BASED	03.06.1987
2450	1.62	2200.0	7.2	WATER BASED	01.06.1987
2450	1.62	2100.0	5.9	WATER BASED	01.06.1987
2450	1.62	2300.0	7.2	WATER BASED	02.06.1987
2450	1.62	2300.0	8.5	WATER BASED	04.06.1987
2450	1.62	2300.0	5.9	WATER BASED	05.06.1987
2815	1.62	670.0	8.0	WATER BASED	25.05.1987
2934	1.62	560.0	7.6	WATER BASED	25.05.1987
2974	1.62	520.0	7.2	WATER BASED	25.05.1987



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 16.5.2024 - 01:08

3150	1.62	630.0	8.0	WATER BASED	27.05.1987
3231	1.62	560.0	8.9	WATER BASED	29.05.1987
3300	1.62	550.0	8.0	WATER BASED	29.05.1987
3379	1.62	2000.0	8.9	WATER BASED	01.06.1987
3760	1.62	2300.0	7.2	WATER BASED	09.06.1987
3841	1.62	1900.0	8.0	WATER BASED	09.06.1987
3934	1.62	2200.0	6.8	WATER BASED	09.06.1987
4016	1.62	2300.0	6.8	WATER BASED	09.06.1987
4053	1.62	2400.0	6.4	WATER BASED	10.06.1987
4058	1.67	2200.0	7.6	WATER BASED	11.06.1987
4092	1.65	1800.0	5.9	WATER BASED	12.06.1987
4167	1.65	1900.0	5.9	WATER BASED	15.06.1987
4182	1.65	1500.0	2.5	WATER BASED	10.08.1987
4260	1.65	1900.0	5.5	WATER BASED	15.06.1987
4354	1.65	2500.0	5.9	WATER BASED	15.06.1987
4369	1.20	1400.0	4.2	WATER BASED	25.06.1987
4408	1.25	900.0	1.7	WATER BASED	10.08.1987
4425	1.65	2400.0	5.1	WATER BASED	16.06.1987
4427	1.65	2200.0	4.2	WATER BASED	17.06.1987
4427	1.65	2200.0	3.8	WATER BASED	18.06.1987
4427	1.65	2000.0	4.2	WATER BASED	19.06.1987
4427	1.65	2000.0	4.2	WATER BASED	22.06.1987
4428	1.25	1600.0	4.2	WATER BASED	22.06.1987
4436	1.25	1000.0	3.4	WATER BASED	23.06.1987
4452	1.25	1000.0	3.4	WATER BASED	24.06.1987
4455	1.25	1000.0	1.7	WATER BASED	05.08.1987
4455	1.25	800.0	1.7	WATER BASED	07.08.1987
4478	1.25	1600.0	4.2	WATER BASED	26.06.1987
4502	1.25	1300.0	4.2	WATER BASED	29.06.1987
4560	1.25	1500.0	4.7	WATER BASED	29.06.1987
4620	1.25	1600.0	5.1	WATER BASED	29.06.1987
4656	1.25	1700.0	5.1	WATER BASED	30.06.1987
4672	1.25	800.0	1.3	WATER BASED	28.07.1987
4672	1.25	800.0	1.7	WATER BASED	29.07.1987
4672	1.25	800.0	1.3	WATER BASED	31.07.1987
4672	1.25	900.0	2.1	WATER BASED	03.08.1987
4672	1.25	900.0	1.7	WATER BASED	04.08.1987
4688	1.25	1500.0	4.7	WATER BASED	01.07.1987
4692	1.25	800.0	1.3	WATER BASED	27.07.1987
4720	1.25	800.0	1.7	WATER BASED	23.07.1987



4720	1.25	900.0	1.3	WATER BASED	24.07.1987
4720	1.25	400.0	1.7	WATER BASED	27.07.1987
4720	1.25	800.0	1.3	WATER BASED	27.07.1987
4720	1.25	900.0	1.7	WATER BASED	22.07.1987
4730	1.25	900.0	1.7	WATER BASED	21.07.1987
4752	1.25	1600.0	4.2	WATER BASED	02.07.1987
4838	1.25	1900.0	5.1	WATER BASED	13.07.1987
4838	1.25	1300.0	2.5	WATER BASED	13.07.1987
4838	1.26	1200.0	2.5	WATER BASED	13.07.1987
4838	1.26	1100.0	2.5	WATER BASED	13.07.1987
4838	1.26	1100.0	2.5	WATER BASED	14.07.1987
4838	1.25	1000.0	5.2	WATER BASED	15.07.1987
4838	1.26	1000.0	2.5	WATER BASED	17.07.1987
4838	1.25	900.0	1.7	WATER BASED	20.07.1987
4838	1.25	2300.0	7.6	WATER BASED	13.07.1987
4838	1.25	1600.0	3.8	WATER BASED	16.07.1987
4838	1.25	1000.0	2.1	WATER BASED	20.07.1987
4840	1.25	1900.0	5.1	WATER BASED	03.07.1987
4840	1.25	2300.0	4.6	WATER BASED	06.07.1987
4840	1.25	2200.0	4.2	WATER BASED	06.07.1987
4840	1.25	2400.0	7.2	WATER BASED	06.07.1987
4840	1.25	2100.0	6.3	WATER BASED	07.07.1987

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]
300 Formation pressure (Formasjonstrykk)	pdf	0.29

