



Generell informasjon

Brønnbane navn	6406/3-8
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORWEGIAN SEA
Felt	MARIA
Funn	6406/3-8 Maria
Brønn navn	6406/3-8
Seismisk lokalisering	ST0614Inline 1346 & St0614 Xline 2122
Utvinningstillatelse	475 BS
Boreoperatør	Wintershall Norge ASA
Boretillatelse	1303-L
Boreinnretning	SONGA DELTA
Boredager	87
Borestart	16.05.2010
Boreslutt	10.08.2010
Frigitt dato	10.08.2012
Publiseringsdato	23.08.2012
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	MIDDLE JURASSIC
1. nivå med hydrokarboner, formasjon.	GARN FM
Avstand, boredekk - midlere havflate [m]	29.0
Vanndybde ved midlere havflate [m]	303.0
Totalt målt dybde (MD) [m RKB]	4216.0
Totalt vertikalt dybde (TVD) [m RKB]	4138.0
Maks inklinasjon [°]	21.6
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	TILJE FM
Geodetisk datum	ED50
NS grader	64° 56' 9.31" N
ØV grader	6° 56' 33.43" E



NS UTM [m]	7203074.63
ØV UTM [m]	402756.88
UTM sone	32
NPDID for brønnbanen	6350

Brønnhistorie



General

Well 6406/3-8 was drilled on the Maria prospect located in the Haltenbanken area, offshore Mid Norway. The prospect area is surrounded by producing fields and discoveries; Kristin (W), Smørbukk Sør (NW), Smørbukk (NW), Heidrun (N), Midgard (E), Tyrihans (SE) and Trestakk (SW). The primary objective was to confirm petroleum in the Middle Jurassic Garn Formation, with the deeper Ile and Tilje formations as secondary objectives. Also the Cretaceous Lysing Formation was seen at potentially hydrocarbon bearing.

Operations and results

Wildcat well 6406/3-8 was drilled with the semi-submersible installation Songa Delta. The well was spudded on three different locations with a 9 7/8" pilot hole assembly, due to shallow gas zones at 569 m, 620 m, and 670 m. The third pilot hole was drilled to revised 20" setting depth, at 545 m. Technical problems with lost circulation in the 14 3/4"x 17 1/2" hole led to a sidetrack at 1727 m (6406/3-8 T2) from the 16" liner shoe around the problem section, and back to the planned trajectory towards the end of the 12 1/4" section. This gave significant deviation from the vertical trajectory. The well was drilled to 4216 m (4138 m TVD) in the Early Jurassic Tilje Formation. The well was drilled with sea water down to 541 m and with Carbo-Sea oil based mud from 541 m to TD.

The Lysing Formation was found tight and water bearing. Clear hydrocarbon shows and increased gas values were observed when penetrating the Middle Jurassic Garn Formation at 3841 m (3771 m TVD). Based on log and pressure data an OWC was established at 3907 m (3837 m TVD) giving an oil column of 66 m TVD in the well. No gas cap was observed. Two parallel oil gradients of 0.66 g/cc with a separation of 0.4 Bar was established in the Garn Formation and a clear water gradient of 0.982 g/cc in the lower part of Garn Formation was encountered. The Garn Formation sandstones had an average porosity of 14.5 % with porosity cut off of 10 % and Vclay cut-off of 50 %. The secondary targets, Ile and Tilje Formations, were water bearing.

Two cores were cut from 3846 to 3929.6 m in the Garn Formation with 100% core recovery. The sandstones had an average porosity of 14.5 % when using a 10% cut off. The second core was water wet in the bottom after coring through the OWC. The upper 5 m of the Garn Formation was missed in the process of picking the coring point, and a sidewall coring run was performed to compensate for this. Oil and water samples were collected from the Garn Fm, both with conventional RCI probe and with the RCI straddle packer as part of the mini DST program. The fluid samples were taken at 3842.01 m (oil), 3843.5 m (oil), 3852 m (oil), 3873.5 m (oil), 3877.53 m (oil), 3896.12 m (oil), 3900 m (oil), and 3920 m (water). The samples were variably contaminated by the OBM in the C13 to C20 alkane range. The oil gravity was measured to 36.4 deg API with a GOR of 170 Sm³/Sm³.

The well was permanently abandoned on 10 August 2010 as an oil discovery.

Testing

No drill stem test was performed.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
550.00	2280.00



Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3846.0	3873.9	[m]
2	3874.0	3929.6	[m]

Total kjerneprøve lengde [m]	83.5
Kjerner tilgjengelig for prøvetaking?	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
332	NORDLAND GP
332	NAUST FM
1485	KAI FM
1850	HORDALAND GP
1850	BRYGGE FM
2299	ROGALAND GP
2299	TARE FM
2358	TANG FM
2424	SHETLAND GP
2424	SPRINGAR FM
2586	NISE FM
2777	KVITNOS FM
3244	CROMER KNOLL GP
3244	LYSING FM
3303	LANGE FM
3783	VIKING GP
3783	SPEKK FM
3795	MELKE FM
3841	FANGST GP
3841	GARN FM
3940	NOT FM
3976	ILE FM
4041	BÅT GP



4041	ROR FM
4166	TILJE FM

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
6350_01_6406_3_8_gch_transfer_1	txt	0.00
6350_02_6406_3_8_gch_results_1	txt	0.26

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
MMWD LWD - GR RES DIR SON	1698	2280
MWD LWD - GR RES DIR	332	1698
MWD LWD - GR RES DIR	1654	2312
MWD LWD - NB GR RES DIR CAL DEN	2312	4216
MWD LWD - NEU SONIC	2312	4216
QUAD COMBO	3759	4186
RCI	3842	4182
RCI MINI-DST-VIT-SAMPLE	3843	3890
SWC	3840	3847
VSP	1700	4210

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	397.0	36	398.0	0.00	LOT
SURF.COND.	20	541.0	26	544.0	0.00	LOT
PILOT HOLE		545.0	9 5/8	545.0	0.00	LOT
LINER	16	1692.0	20	1698.0	0.00	LOT
INTERM.	13 3/8	2280.0	17 1/2	2327.0	0.00	LOT
INTERM.	9 5/8	3803.0	12 1/4	3805.0	0.00	LOT
OPEN HOLE		4216.0	8 1/2	4216.0	0.00	LOT

Boreslam





Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
368	1.06			SPUD MUD	
544	1.07			SPUD MUD	
672	1.21	14.0		AQUACOL KCL/POLYMER/GLY COL	
1277	1.26	16.0		AQUACOL KCL/POLYMER/GLY COL	
1654	1.60	34.0		CARBO TECH	
1694	1.27	18.0		AQUACOL KCL/POLYMER/GLY COL	
1700	1.31	17.0		AQUACOL KCL/POLYMER/GLY COL	
1808	1.60	45.0		CARBO TECH	
1918	1.67	48.0		CARBO TECH	
1964	1.33	19.0		AQUACOL KCL/POLYMER/GLY COL	
2054	1.63	47.0		CARBO TECH	
2135	1.33	20.0		AQUACOL KCL/POLYMER/GLY COL	
2180	1.63	55.0		CARBO TECH	
2280	1.67	49.0		CARBO TECH	
2327	1.63	52.0		CARBO TECH	
2828	1.72	52.0		CARBO TECH	
3647	1.22	5.7		CARBO TECH	
3805	1.72	50.0		CARBO TECH	
3846	1.20	17.0		CARBO TECH	
3928	1.23	20.0		CARBO TECH	
3997	1.20	21.0		CARBO TECH	
4216	1.21	22.0		CARBO TECH	

Trykkplott

Poreretrykksdataene 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]
6350 Formation pressure (Formasjonstrykk)	pdf	0.27

