



Generell informasjon

Brønnbane navn	2/4-3
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	EKOFISK
Funn	2/4-2 Ekofisk
Brønn navn	2/4-3
Seismisk lokalisering	
Utvinningstillatelse	018
Boreoperatør	Phillips Petroleum Company Norway
Boretillatelse	35-L
Boreinnretning	OCEAN VIKING
Boredager	125
Borestart	27.01.1970
Boreslutt	31.05.1970
Frigitt dato	31.05.1972
Publiseringsdato	02.04.2007
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	PALEOCENE
1. nivå med hydrokarboner, formasjon.	EKOFISK FM
2. nivå med hydrokarboner, alder	LATE CRETACEOUS
2. nivå med hydrokarboner, formasjon	TOR FM
Avstand, boredekk - midlere havflate [m]	27.0
Vanndybde ved midlere havflate [m]	71.0
Totalt målt dybde (MD) [m RKB]	3431.0
Maks inklinasjon [°]	16.4
Temperatur ved bunn av brønnbanen [°C]	138
Eldste penetrerte alder	LATE CRETACEOUS
Eldste penetrerte formasjon	TOR FM
Geodetisk datum	ED50



NS grader	56° 32' 42.12" N
ØV grader	3° 14' 55.49" E
NS UTM [m]	6266910.18
ØV UTM [m]	515295.52
UTM sone	31
NPDID for brønnbanen	97

Brønnhistorie

General

Well 2/4-3 (named 2/4-2X by operator Phillips) was drilled to appraise the 2/4-2 Ekofisk discovery in the southern Norwegian North Sea. The target was to test the Tertiary and the top of the Late Cretaceous.

Operations and results

Well 2/4-3 was spudded with the semi-submersible installation Ocean Viking on 27 January 1970 and drilled to TD at 3431 m in the Late Cretaceous Tor Formation. The well was planned vertical, but the deviation was significant. Maximum deviation was 1 deg at 618 m, 3 deg at 1077 m, 11.5 deg at 1316 m, 16.4 deg at 1605 m, 10 deg at 2167 m, 4 deg at 3002 m, and 1.7 deg at 3292 m. This indicates that TVD RKB is ca 30 m shallower than MD RKB at TD, but exact records are not available. The well was drilled with seawater and hi-vis mud down to 619 m, with CaCl₂ / Dextrid (modified potato starch) from 619 m to 1695 m, and with lignosulphonate / seawater from 1695 m to TD. One - four percent diesel was added to the mud below 619 m.

The Danian chalk (Ekofisk Formation) was encountered at 3090 m, and the Late Cretaceous chalk (Tor Formation) at 3253 m. The formations were tested hydrocarbon bearing from 3124 m to 3319 m.

Eighteen conventional cores were cut in the well. Core 1 was cut in the interval 1705 - 1717 m with only 0.6 m core recovered. Cores 2 - 13 were cut in the Danian chalk (Ekofisk Formation), while cores 14 - 18 were cut in the Maastrichtian chalk (Tor Formation). No fluid samples were taken on wire line.

The well was permanently abandoned on 31 May 1970 as an oil appraisal.

Testing

Ten drill stem tests were carried out through perforations in the 7" liner. DST 1 and 2 tested the intervals 3352 - 3362 m and 3331 - 3341 m in the Tor Formation. They produced only water. DST 3 to 9 tested different zones in the interval from 3124 to 3319 m in the Ekofisk and Tor Formations. They produced gas and oil. The oils were in the range 33.2 to 36 deg API and the GOR varied from 182 to 243 Sm³/Sm³. DST 10 tested the interval 3016 - 3024 m in the Sele Formation. It flowed 2.4 Sm³ of water, and then died. Reservoir temperatures at mid perforation were reported to be: 134.4 deg C (at 3317.7 m) in DST 3, 133.6 deg C (at 3281.2 m) in DST 4, and 132.2 deg C (at 3238.5 m) in DST 5.

Borekaks i Sokkeldirektoratet



Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
627.90	3431.13

Borekaks tilgjengelig for prøvetaking?	YES
--	-----

Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
2	10220.0	10225.0	[ft]
3	10226.0	10233.0	[ft]
4	10235.0	10252.0	[ft]
5	10250.0	10276.0	[ft]
6	10276.0	10279.0	[ft]
7	10279.0	10289.0	[ft]
8	10294.0	10310.0	[ft]
9	10314.0	10324.0	[ft]
10	10379.0	10388.0	[ft]
11	10385.0	10395.0	[ft]
12	10550.0	10573.0	[ft]
13	10665.0	10669.0	[ft]
14	10669.0	10679.0	[ft]
15	10679.0	10708.0	[ft]
16	10750.0	10769.0	[ft]
17	10870.0	10894.5	[ft]
18	10894.5	10949.0	[ft]

Total kjerneprøve lengde [m]	84.4
Kjerner tilgjengelig for prøvetaking?	YES

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
10668.0	[ft]	C	OD

Litostratigrafi



Topp Dyb [mMD RKB]	Litostrat. enhet
98	NORDLAND GP
1730	HORDALAND GP
2960	ROGALAND GP
2960	BALDER FM
2969	SELE FM
2976	LISTA FM
3005	VIDAR FM
3023	LISTA FM
3076	VÅLE FM
3090	SHETLAND GP
3090	EKOFISK FM
3253	TOR FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
97	pdf	0.43

Dokumenter - eldre Søkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
97 01 WDSS General Information	pdf	1.05

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
97 01 2 4 3 (2X) Completion Report and Completion log	pdf	11.81
97 02 2 4 3(2X) Well Recompletion Report	pdf	9.41
97 03 2 4 3(2X) Well Completion Report	pdf	0.12
97 04 2 4 3 (2X) Individual Well Completion Record	pdf	1.18
97 05 2 4 3(2X) Drill Stem Tests	pdf	55.84
97 05 2 4 3(2X) Reservoir Fluid Studies	pdf	1.40





97 05 2 4 3 (2X) Reservoir Fluid Study DST 1-4	pdf	29.21
97 05 2 4 3 (2X) Reservoir Fluid Study DST 5-10	pdf	29.53
97 05 2 4 3 (2X) Reservoir Fluid Study DST 6	pdf	1.19
97 05 2 4 3 (2X) Reservoir Fluid Study DST 6C-7-8-9	pdf	1.24
97 06 2 4 3 (2X) Petrography Environment of Deposition	pdf	32.20
97 07 2 4 3(2X) Mud Report 1	pdf	27.19
97 07 2 4 3(2X) Mud Report 2	pdf	19.24

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3354	3363	25.4
2.0	3332	3341	25.4
3.0	3317	3320	19.0
4.0	3268	3296	28.5
5.0	3235	3244	19.0
6.0	3195	3226	6.3
7.0	3195	3226	19.0
8.0	3139	3148	6.0
9.0	3124	3154	25.4
10.0	3124	3224	19.0
11.0	3015	3023	25.4

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0				
3.0	7.300		27.500	
4.0				
5.0	28.000			
6.0	28.500		46.000	
7.0	28.000		33.000	
8.0	28.000		46.000	
9.0	28.000		20.000	





10.0	28.000		38.000	
11.0				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygnde rel. luft	GOR [m3/m3]
1.0					
2.0					
3.0	323	58581	0.855		
4.0	328	62967	0.845		
5.0	172	36337	0.853		
6.0	166	35799	0.848		
7.0	609	129812	0.854		
8.0	186	39337	0.847		
9.0	326	79240	0.849		
10.0	595	132925	0.859		
11.0					

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL	2947	3379
CDM	610	3429
CDS	1402	2012
DIR	607	3430
FDC	1629	3429
GR	98	607
GRN	2942	3372
IES	607	3429
LL-7	3008	3429
MLL-C	3008	3429
SGR	607	1629
SGR-C	1629	3426
SNP	3008	3429
VDL	2988	3384
VELOCITY	607	3426
AA	3008	3425



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	131.0	36	131.0	0.00	LOT
SURF.COND.	20	607.0	26	619.0	0.00	LOT
INTERM.	13 3/8	1629.0	17 1/2	1633.0	0.00	LOT
INTERM.	9 5/9	3007.0	12 1/4	3018.0	0.00	LOT
LINER	7	3389.0	8 1/2	3432.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
619	1.03			seawater	
1153	1.70			cacl/broxin	
1632	1.71			seaw/broxin	
2320	1.71			seaw/broxin	
3018	1.71			seaw/broxin	
3225	1.71			seaw/broxin	

Tynnslip i Sokkeldirektoratet

Dybde	Enhet
10679.00	[ft]
10685.00	[ft]
10759.00	[ft]
149.00	[m]
150.00	[m]
151.00	[m]
156.00	[m]
157.00	[m]
160.00	[m]
161.00	[m]
162.00	[m]
165.00	[m]
170.00	[m]