



Generell informasjon

Brønnbane navn	2/4-4
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	2/4-4
Seismisk lokalisering	LINE PG-0312 SP: 685
Utvinningsstillatelse	018
Boreoperatør	Phillips Petroleum Company Norway
Boretillatelse	37-L
Boreinnretning	OCEAN VIKING
Boredager	61
Borestart	02.06.1970
Boreslutt	01.08.1970
Frigitt dato	01.08.1972
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]	3424.0
Totalt vertikalt dybde (TVD) [m RKB]	3424.0
Maks inklinasjon [°]	1.5
Temperatur ved bunn av brønnbanen [°C]	121
Eldste penetrerte alder	LATE CRETACEOUS



Eldste penetrerte formasjon	TOR FM
Geodetisk datum	ED50
NS grader	56° 30' 47.9" N
ØV grader	3° 12' 39.48" E
NS UTM [m]	6263370.75
ØV UTM [m]	512983.23
UTM sone	31
NPDID for brønnbanen	174

Brønnhistorie

General

Well 2/4-4 (named 2/4-3X by operator Phillips) was drilled to appraise the southern segment of the 2/4-2 Ekofisk discovery. The Ekofisk discovery is located in the Central Trough in the southern Norwegian North Sea and its structure is an anticline, uplifted by halokinetic movements of Permian salt. The objective of well 2/4-4 was to test the Tertiary and the top of the Late Cretaceous. Planned total depth was 11000 ft (3352 m).

Operations and results

Well 2/4-4 was spudded with the semi-submersible installation Ocean Viking on 2 June 1970 and drilled to TD at 3424 m in the Late Cretaceous Tor Formation. The well was drilled with seawater and hi-vis mud down to 622 m, and with seawater/drill-aid mud from 622 m to TD. Two - six percent oil was added to the mud below 622 m.

The Shetland Group was encountered with top Ekofisk Formation at 3116 m and top Tor Formation at 3259 m. Oil was tested in the Ekofisk Formation in various zones in the interval 3127 - 3225 m. The Tor Formation produced only water.

Two short cores were cut in the Ekofisk Formation and one 8-m core was cut in the Tor Formation. No fluid samples were taken on wire line.

The well was permanently abandoned on 1 August 1970 as an oil appraisal.

Testing

Eight drill stem tests through perforations in the 7" liner were carried out, one in the Tor Formation, the rest in the Ekofisk Formation. The Tor test produced only water, the lowermost test in Ekofisk did not produce liquid to the surface, but 100 ft (30.5 m) gas cut mud was reversed out of the test string. The next lowermost Ekofisk test, DST 3 from 3233 - 3236 m, also produced water and no hydrocarbons. The remaining tests, all in the Ekofisk Formation gave oil. Maximum flow was obtained from the interval 3162 - 3200 m in DST 8 with 601 Sm³ oil /day on two 3/4" chokes. The oil gravity was in the range 34.2 - 35.6 deg API and the GOR was in the range 165 - 251 Sm³/Sm³.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
627.90	3422.90



Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	10520.0	10522.0	[ft]
2	10647.0	10648.0	[ft]
3	10790.0	10817.0	[ft]

Total kjerneprøve lengde [m]	9.1
Kjerner tilgjengelig for prøvetaking?	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
98	NORDLAND GP
1736	HORDALAND GP
2978	ROGALAND GP
2978	BALDER FM
2989	SELE FM
2994	LISTA FM
3116	SHETLAND GP
3116	EKOFISK FM
3259	TOR FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
174	pdf	0.47

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
174 01 WDSS General Information	pdf	0.19





Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
174 01 2 4 4(3X) Completion Report and Completion log	pdf	17.90
174 02 2 4 4(3X) Drilling Fluid Summary	pdf	6.83
174 02 2 4 4(3X) Individual Well Record	pdf	4.22
174 02 2 4 4(3X) Mud Reports	pdf	10.55
174 02 2 4 4 (3X) Well Recompletion Report	pdf	17.90
174 03 2 4 4 (3X) Complex Lithology Analysis	pdf	47.43
174 03 2 4 4 (3X) Computer Processed Interpretation	pdf	3.23
174 03 2 4 4 (3X) Computer Processed Interpretations	pdf	4.47
174 03 2 4 4 (3X) Quantitative Log Interpretation	pdf	14.31
174 03 2 4 4(3X) Reservoir Fluid Study	pdf	6.81
174 05 2 4 4 (3X) Companion Separator Sample Analysis	pdf	13.17
174 05 2 4 4 (3X) Drill Stem Test Data Test 1	pdf	5.31
174 05 2 4 4 (3X) Drill Stem Test Data test 2	pdf	2.00
174 05 2 4 4 (3X) Drill Stem Test Data Test 3	pdf	3.78
174 05 2 4 4 (3X) Drill Stem Test data Test 4	pdf	3.93
174 05 2 4 4 (3X) Drill Stem Test Data Test 5	pdf	0.25
174 05 2 4 4 (3X) Drill Stem Test Data Test 5A	pdf	5.55
174 05 2 4 4 (3X) Drill Stem Test Data Test 6	pdf	3.27
174 05 2 4 4 (3X) Drill Stem Test data Test 7	pdf	3.15
174 05 2 4 4 (3X) Drill Stem Test Data Test 8	pdf	4.21
174 05 2 4 4(3X) Summary of DSTs	pdf	0.81

Dokumenter - Sjøkeldirektoratets publikasjoner





Dokument navn	Dokument format	Dokument størrelse [KB]
174_01_NPD_Paper_No.25_Lithology_Well_2_4_4	pdf	18.62
174_02_NPD_Paper_No.25_Interpreted_Lithology_log_Well_2_4_4	pdf	57.03
174_03_NPD_Paper_No.25_Lithologic_Correlation_chart_Well_2_4_4	pdf	1.95
174_04_NPD_Paper_No.25_Paleocene_Maastrichtian_Correlation_chart_Well_2_4_4	pdf	1.18

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsventil størrelse [mm]
1.0	3274	3284	25.4
2.0	3247	3256	25.4
3.0	3234	3237	25.4
4.0	3220	3226	19.0
5.0	3177	3201	19.0
6.0	3163	3168	19.0
7.0	3128	3152	19.0

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0				
3.0				
4.0	27.000	4.000	15.000	
5.0	28.000	6.000	23.000	
6.0	26.000	2.000	9.000	
7.0	28.000	8.000	30.000	

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0					
2.0					
3.0					
4.0	168	32488	0.854		





5.0	432	77655	0.848		
6.0	107	26998	0.850		
7.0	600	613800	0.847		1023

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CAL	599	1648
CBL	3003	3410
CDM	3094	3427
DIR	599	3427
FDC	2744	3428
GR	91	598
IES	599	3426
LL-7	3094	3428
MLL-C	3094	3428
SGR	598	1640
SGR-C	1640	3425
SNP	3094	3428
AA	3094	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	135.0	36	135.0	0.00	LOT
SURF.COND.	20	598.0	26	622.0	0.00	LOT
INTERM.	13 3/8	1639.0	17 1/2	1646.0	0.00	LOT
INTERM.	9 5/8	3094.0	12 1/4	3111.0	0.00	LOT
LINER	7	3424.0	8 1/2	3426.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
135	1.49			seawat/slug	
653	1.50			seawat/slug	
1113	1.71			seawat/aid	



1646	1.71			seawat/aid	
2060	1.71			seawat/aid	
3021	1.71			seawat/aid	
3255	1.71			seawat/aid	
3425	1.71			seawat/aid	

Tynnslip i Sökkeldirektoratet

Dybde	Enhet
10455.00	[ft]
10474.00	[ft]
10497.00	[ft]
16101.00	[ft]
21901.00	[ft]