



Generell informasjon

Brønnbane navn	2/11-6 S
Type	EXPLORATION
Formål	APPRAISAL
Status	SUSPENDED
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	HOD
Funn	2/11-2 Hod
Brønn navn	2/11-6
Seismisk lokalisering	ANO 75 - 13 SP. 333
Utvinningstillatelse	033
Boreoperatør	Amoco Norway Oil Company
Boretillatelse	305-L
Boreinnretning	SEDCO 703
Boredager	177
Borestart	02.09.1981
Boreslutt	25.02.1982
Frigitt dato	25.02.1984
Publiseringsdato	22.03.2013
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE CRETACEOUS
1. nivå med hydrokarboner, formasjon.	TOR FM
2. nivå med hydrokarboner, alder	LATE CRETACEOUS
2. nivå med hydrokarboner, formasjon	HOD FM
Avstand, boredekk - midlere havflate [m]	26.0
Vanndybde ved midlere havflate [m]	72.0
Totalt målt dybde (MD) [m RKB]	4076.0
Totalt vertikalt dybde (TVD) [m RKB]	2957.0
Maks inklinasjon [°]	57
Temperatur ved bunn av brønnbanen [°C]	111
Eldste penetrerte alder	EARLY CRETACEOUS



Eldste penetrerte formasjon	HOD FM
Geodetisk datum	ED50
NS grader	56° 10' 35.5" N
ØV grader	3° 27' 36.72" E
NS UTM [m]	6225960.07
ØV UTM [m]	528571.99
UTM sone	31
NPDID for brønnbanen	289

Brønnhistorie



General

Well 2/11-6 S was drilled on the Lindesnes Ridge in the southern North Sea. The objective was to appraise the Hod discovery made by well 2/11-2 in 1974 (Hod West) and appraisal well 2/11-3 in 1977 (Hod East). The Hod structure is oil-bearing in Late Cretaceous chalks, the Hod and Tor formations. Well 2/11-6 S targeted the Hod East structure.

Operations and results

Appraisal well 2/11-6 S was the first well to be drilled on a subsea template which was laid by the semi-submersible installation Sedco 703. It was then drilled with Sedco 703 through slot number W7 of the twelve slot templates, to TD at 3970 m (2905 m TVD) where the pipe got stuck. The pipe was shot off with top of the fish at 3669 m and a technical sidetrack 2/11-6 ST1 was kicked off from 3626 m. The sidetrack was drilled to the final TD at 4076 m (2980 m TVD). The initial well bore was drilled with seawater and hi-vis sweeps down to 1460 m, with Vertoil oil based mud from 1460 m to 3601 m, and with Oilfaze oil based mud from 3601 m to 3970 m. The 2/11-6 ST1 sidetrack was drilled with Vertoil oil based mud from kick-off to TD.

Well 2/11-6 drilled a nearly complete Tertiary section and penetrated top chalk at 3690 m (2732 m TVD). The sidetrack penetrated top of the chalk group at 3685 m (2729 m) with a slightly lower angle (50 deg) than in the initial well bore (55 deg). The chalk stratigraphy in the two well bores was very similar apart from the angle/depth shift. The well tested oil in the Tor / upper Hod formations and in the lower Hod Formation.

Seven conventional cores were cut from 3693 to 3741 m in the initial well bore before side tracking. The cores were cut in the Late Cretaceous Chalk. The total recovery was 34 m (71%). Due to the fish left in the hole no logs were run below 3790 m in the initial well bore. Logs were run to TD in the sidetrack, including the RFT tool, but no fluid samples were taken.

The well was suspended on 25 February 1982 as an oil appraisal well.

Testing

Two Drill Stem Tests were performed.

DST 1 tested the interval 3875 - 3900 m (2851.7 - 2867.8 m TVD) in the Hod Formation. It produced 39650 Sm³ gas and 355 Sm³ oil /day through a 24/64" choke. The GOR was 108 Sm³/Sm³.

DST 2 tested the interval 3685 - 3735 m (2729.7 - 2761.8 m TVD) in the Tor Formation and the upper part of the Hod Formation. It produced 93450 Sm³ gas and 922 Sm³ oil /day through a 48/64" choke. The GOR was 101 Sm³/Sm³, the oil density was 0.871 g/cm³, and the gas gravity was 0.71 (air = 1). The down hole temperature, measured at 3609 m, was 104.4 deg C.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
180.00	3970.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3693.1	3712.0	[m]

Total kjerneprøve lengde [m]	19.0
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



3693-3696m



3696-3703m



3703-3709m



3709-3711m



3711-3717m



3717-3720m



3720-3723m



3723-3727m



3727-3734m



3734-3736m



3736-3739m



3739-3740m

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
98	NORDLAND GP
1792	HORDALAND GP



3564	ROGALAND GP
3564	BALDER FM
3690	SHETLAND GP
3690	TOR FM
3716	HOD FM

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
289_01_WDSS_General_Information	pdf	0.20
289_02_WDSS_completion_log	pdf	0.23

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
289_2_11_6_Completion_log	pdf	2.39
289_2_11_6_S_Biostratigraphy_of_the_Intervals_180m-3970m	pdf	9.00
289_2_11_6_S_Completion_report	pdf	2.79
289_2_11_6_S_Completion_report_drilling	pdf	5.36
289_2_11_6_S_Core_analysis	pdf	0.60
289_2_11_6_S_Petrographic_and_scanning_electron	pdf	3.17
289_2_11_6_S_Petrographic_and_Sheets_for_Interval_3693-3739m	pdf	6.77
289_2_11_6_S_PVT_study_DST1_3875-3900m	pdf	2.41
289_2_11_6_S_PVT_study_DST1_Zone_3875-3900m	pdf	5.19
289_2_11_6_S_PVT_study_DST2_Zone_3713-3735m	pdf	4.18
289_2_11_6_S_PVT_stud_Zone_3685-3706m	pdf	4.24

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3875	3900	3.2
2.0	3585	3706	7.9





3.0	3713	3735	19.0
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Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningsstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				
2.0				
3.0				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0	364	39000			105
2.0	223	24000	0.863	0.714	106
3.0	921	87000			95

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL CCL GR	3386	4038
DIL LDL NGT	3589	4976
HDT	3589	4079
HRT	3440	4028
LDL CNL GR	3589	4080
RFT GR	3589	3952
VELOCITY	352	4076

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	167.0	36	167.0	0.00	LOT
SURF.COND.	20	353.0	26	358.0	1.38	LOT
INTERM.	13 3/8	1453.0	17 1/2	1461.0	1.90	LOT
INTERM.	9 5/8	3593.0	12 1/4	3601.0	1.97	LOT
LINER	7	4072.0	8 1/2	4076.0	0.00	LOT

Boreslam



Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
130	1.03			waterbased	
1125	1.07			waterbased	
1325	1.11	34.0		waterbased	
1475	1.53	53.0		waterbased	
1565	1.54	70.0		waterbased	
1850	1.56	68.0		waterbased	
2260	1.74	70.0		waterbased	
3900	1.88	94.0		waterbased	
3920	1.81	90.0		waterbased	

Tynnslip i Sokkeldirektoratet

Dybde	Enhet
3721.36	[m]
3722.50	[m]
3718.20	[m]
3720.00	[m]

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]
289_Formalion_pressure_(Formasjonstrykk)	pdf	0.21

