



Generell informasjon

Brønnbane navn	15/12-9 S
Type	EXPLORATION
Formål	APPRAISAL
Status	RE-CLASS TO DEV
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	VARG
Funn	15/12-4 Varg
Brønn navn	15/12-9
Seismisk lokalisering	ST 8802- KOLONNE 919 & RAD 461
Utvinningstillatelse	038
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	732-L
Boreinnretning	DEEPSEA BERGEN
Boredager	84
Borestart	17.07.1992
Boreslutt	08.10.1992
Frigitt dato	08.10.1994
Publiseringsdato	06.01.2015
Opprinnelig formål	APPRAISAL
Reklassifisert til brønnbane	15/12-A-11
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	INTRA HEATHER FM SS
Avstand, boredekk - midlere havflate [m]	23.0
Vanndybde ved midlere havflate [m]	84.0
Totalt målt dybde (MD) [m RKB]	3848.0
Totalt vertikalt dybde (TVD) [m RKB]	3213.0
Maks inklinasjon [°]	57.6
Temperatur ved bunn av brønnbanen [°C]	124
Eldste penetrerte alder	TRIASSIC
Eldste penetrerte formasjon	SKAGERRAK FM
Geodetisk datum	ED50



NS grader	58° 4' 40.43" N
ØV grader	1° 53' 25.75" E
NS UTM [m]	6438067.06
ØV UTM [m]	434558.55
UTM sone	31
NPDID for brønnbanen	1978

Brønnhistorie

General

Well 15/12-9 S was drilled on the Varg Field in the North Sea. The Varg Field reservoir is in Upper Jurassic sandstones at a depth of approximately 2700 metres. The Varg Field is segmented and includes several isolated compartments with varying reservoir properties. The well was drilled from a location near to the Varg A and Petrojarl A production installations and targeted a southern compartment in the Varg structure. The objective for the well was to prove hydrocarbons in Late Oxfordian sandstone and to reduce the uncertainty in the reserve estimate for this part of the Varg Field.

Operations and results

Appraisal well 15/12-9 S was spudded with the semi-submersible installation Deepsea Bergen on 17 July 1992 and drilled to TD at 3848 m (3213 m TVD) in the Triassic Skagerrak Formation. The well was drilled deviated from 623 m with a sail angle of ca 56 ° and then vertical again from ca 2400 m TVD through the target reservoir to TD. The well was drilled with seawater down to 620 m, with KCl/polymer mud from 620 m to 3226 m, and with Ancotemp/bentonite mud from 3226 m to TD.

The well penetrated top reservoir, the Oxfordian sandstones, at 3385 m (2750 m TVD). The reservoir was oil-bearing down to a well-defined OWC at 3501.5 m (2867.0 m TVD). Seven cores were cut with 100% recovery. Core 1 to 6 were cut in the interval 3689 m to 3555 m and core 7 was cut from 3649.5 m to 3668.0 m. The core to log depth shift was - 2.45 m for core 7; for the other cores the core depth was equal to the logger's depth. Two segregated FMT oil samples were taken at 3498 m. Oil shows continued down to 3545m

The well is classified an oil appraisal well. It was suspended on 8 October 1992 and was later re-classified to oil production well 15/12-A-11 on the Varg Field.

Testing

Two drill stem tests were performed in the Oxfordian sandstones.

DST 1 tested the water zone from 3545 m to 3552 m (2910 – 2917 m). The test produced water at a rate of 890 m³/day through a 48/64" choke.

DST 2 tested the oil zone from 3385 m to 3443 m (2750 – 2809 m). The test produced on average 132200 Sm³ gas and 1520 Sm³ oil /day through a 40/64" choke. The GOR was 87 Sm³/Sm³, the oil density was 0.852 g/cm³ and the gas gravity was 0.751 (air = 1) with 1.5% CO₂ and 4% H₂S. Maximum flowing temperature was 124.6 °C.

Borekaks i Sokkeldirektoratet



Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
630.00	3815.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3389.0	3416.0	[m]
2	3416.0	3443.6	[m]
3	3443.6	3471.0	[m]
4	3471.3	3499.0	[m]
5	3499.1	3527.0	[m]
6	3527.3	3555.0	[m]
7	3652.0	3670.5	[m]

Total kjerneprøve lengde [m]	183.8
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



3389-3394m



3394-3399m



3399-3404m



3404-3409m



3409-3414m



3414-3416m



3416-3421m



3421-3426m



3426-3431m



3431-3436m





3436-3441m

3441-3443m

3443-3448m

3448-3453m

3453-3458m



3458-3463m

3463-3468m

3468-3471m

3471-3476m

3476-3481m



3481-3486m

3486-3491m

3491-3496m

3496-3499m

3499-3504m



3504-3509m

3509-3514m

3514-3519m

3519-3524m

3524-3527m



3527-3532m

3532-3537m

3537-3542m

3542-3547m

3547-3552m



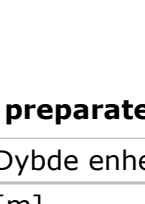
3553-3555m

3652-3657m

3657-3662m

3662-3667m

3667-3670m



Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
1350.0	[m]	DC	GEOCH



1370.0	[m]	DC	GEOCH
1390.0	[m]	DC	GEOCH
1410.0	[m]	DC	GEOCH
1430.0	[m]	DC	GEOCH
1450.0	[m]	DC	GEOCH
1470.0	[m]	DC	GEOCH
1490.0	[m]	DC	GEOCH
1510.0	[m]	DC	GEOCH
1530.0	[m]	DC	GEOCH
1550.0	[m]	DC	GEOCH
1570.0	[m]	DC	GEOCH
1590.0	[m]	DC	GEOCH
1610.0	[m]	DC	GEOCH
1630.0	[m]	DC	GEOCH
1650.0	[m]	DC	GEOCH
1670.0	[m]	DC	GEOCH
1690.0	[m]	DC	GEOCH
1710.0	[m]	DC	GEOCH
1730.0	[m]	DC	GEOCH
1750.0	[m]	DC	GEOCH
1770.0	[m]	DC	GEOCH
1790.0	[m]	DC	GEOCH
1810.0	[m]	DC	GEOCH
1830.0	[m]	DC	GEOCH
1850.0	[m]	DC	GEOCH
1870.0	[m]	DC	GEOCH
1890.0	[m]	DC	GEOCH
1910.0	[m]	DC	GEOCH
1930.0	[m]	DC	GEOCH
1950.0	[m]	DC	GEOCH
1970.0	[m]	DC	GEOCH
1990.0	[m]	DC	GEOCH
2010.0	[m]	DC	GEOCH
2030.0	[m]	DC	GEOCH
2050.0	[m]	DC	GEOCH
2070.0	[m]	DC	GEOCH
2090.0	[m]	DC	GEOCH
2110.0	[m]	DC	GEOCH
2130.0	[m]	DC	GEOCH
2150.0	[m]	DC	GEOCH



2170.0	[m]	DC	GEOCH
2190.0	[m]	DC	GEOCH
2210.0	[m]	DC	GEOCH
2230.0	[m]	DC	GEOCH
2250.0	[m]	DC	GEOCH
2270.0	[m]	DC	GEOCH
2290.0	[m]	DC	GEOCH
2310.0	[m]	DC	GEOCH
2330.0	[m]	DC	GEOCH
2350.0	[m]	DC	GEOCH
2370.0	[m]	DC	GEOCH
2390.0	[m]	DC	GEOCH
2410.0	[m]	DC	GEOCH
2430.0	[m]	DC	GEOCH
2450.0	[m]	DC	GEOCH
2470.0	[m]	DC	GEOCH
2490.0	[m]	DC	GEOCH
2510.0	[m]	DC	GEOCH
2530.0	[m]	DC	GEOCH
2550.0	[m]	DC	GEOCH
2570.0	[m]	DC	GEOCH
2590.0	[m]	DC	GEOCH
2610.0	[m]	DC	GEOCH
2630.0	[m]	DC	GEOCH
2650.0	[m]	DC	GEOCH
2670.0	[m]	DC	GEOCH
2690.0	[m]	DC	GEOCH
2710.0	[m]	DC	GEOCH
2730.0	[m]	DC	GEOCH
2750.0	[m]	DC	GEOCH
2770.0	[m]	DC	GEOCH
2790.0	[m]	DC	GEOCH
2810.0	[m]	DC	GEOCH
2830.0	[m]	DC	GEOCH
2850.0	[m]	DC	GEOCH
2870.0	[m]	DC	GEOCH
2890.0	[m]	DC	GEOCH
2910.0	[m]	DC	GEOCH
2930.0	[m]	DC	GEOCH
2950.0	[m]	DC	GEOCH



2970.0 [m]	DC	GEOCH
2990.0 [m]	DC	GEOCH
3010.0 [m]	DC	GEOCH
3030.0 [m]	DC	GEOCH
3050.0 [m]	DC	GEOCH
3070.0 [m]	DC	GEOCH
3080.0 [m]	DC	GEOCH
3327.0 [m]	DC	
3371.0 [m]	DC	
3391.6 [m]	C	
3391.6 [m]	C	
3399.2 [m]	C	STATOIL
3438.1 [m]	C	
3447.6 [m]	C	
3454.3 [m]	C	STATOIL
3459.6 [m]	C	
3462.5 [m]	C	STATOIL
3478.8 [m]	C	STATOI
3490.4 [m]	C	
3509.3 [m]	C	
3526.4 [m]	C	
3554.4 [m]	C	
3654.4 [m]	C	
3661.0 [m]	C	
3661.2 [m]	C	
3669.2 [m]	C	
3707.0 [m]	C	

Oljeprøver i Sökkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST2	3385.00	0.00	OIL	28.09.1992 - 17:50	YES

Litostratigrafi



Topp Dyb [mMD RKB]	Litostrat. enhet
107	NORDLAND GP
1083	UTSIRA FM
1400	HORDALAND GP
2930	ROGALAND GP
2930	BALDER FM
2945	SELE FM
3005	LISTA FM
3082	VÅLE FM
3091	SHETLAND GP
3091	TOR FM
3187	HOD FM
3260	BLODØKS FM
3295	CROMER KNOLL GP
3304	VIKING GP
3304	DRAUPNE FM
3385	VESTLAND GP
3385	HUGIN FM
3620	SLEIPNER FM
3688	HEGRE GP
3688	SKAGERRAK FM

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
1978_GCH_1	pdf	0.26
1978_GCH_2	pdf	3.89
1978_GCH_3	pdf	0.92

Dokumenter - eldre Sökkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
1978_01_WDSS_General_Information	pdf	0.46
1978_02_WDSS_completion_log	pdf	0.20

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)





Dokument navn	Dokument format	Dokument størrelse [KB]
1978 15 12 9 S Completion log	pdf	1.97
1978 15 12 9 S Completion report	pdf	17.64

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3545	0	19.0
2.0	3385	0	20.6

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0		2.000		
2.0		100.000		

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0					
2.0	1520		0.852	0.751	87

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBIL HXDIP GR	3350	3700
CBL VDL CCL GR	2925	3789
CBL VDL GR	1330	2191
CBL VDL GR	2450	3312
CCL GR	2930	3360
CST GR	3318	3833
DIFL ACL ZDL CNL GR	3306	3844
DLL MLL GR	3306	3676
FMT GR	3400	3673
HXDIP GR	3306	3848
MWD	175	3848
VSP	1570	3730





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
INTERM.	20	599.0	26	600.0	1.76	LOT
INTERM.	13 3/8	2207.0	17 1/2	2210.0	1.91	LOT
INTERM.	9 5/8	3313.0	12 1/4	3315.0	1.87	LOT
LINER	5 1/2	3846.0	8 1/2	3848.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	flytegrense [Pa]	Type slam	Dato, måling
620	1.03			DUMMY	
620	1.03			WATER BASED	
623	1.39	34.0		DUMMY	
960	1.39	40.0		DUMMY	
1387	1.39	46.0		DUMMY	
1697	1.39	46.0		DUMMY	
2225	1.39	36.0		WATER BASED	
2228	1.39	31.0		WATER BASED	
2333	1.33	36.0		WATER BASED	
2447	1.39	31.0		WATER BASED	
2613	1.50	32.0		WATER BASED	
2895	1.53	48.0		WATER BASED	
3035	1.53	37.0		WATER BASED	
3169	1.53	39.0		WATER BASED	
3292	1.53	37.0		WATER BASED	
3326	1.53	40.0		WATER BASED	
3330	1.33	16.0		WATER BASED	
3333	1.33	27.0		WATER BASED	
3385	1.33	29.0		WATER BASED	
3389	1.33	27.0		WATER BASED	
3443	1.33	28.0		WATER BASED	
3471	1.33	25.0		WATER BASED	
3527	1.33	28.0		WATER BASED	
3555	1.33	21.0		WATER BASED	



3610	1.33	25.0		WATER BASED	
3655	1.33	32.0		WATER BASED	
3690	1.33	36.0		WATER BASED	
3848	1.33	34.0		WATER BASED	

Tynnslip i Sokkeldirektoratet

Dybde	Enhet
3525.70	[m]
3532.10	[m]
3532.70	[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 brønnspar. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
1978 Formation pressure (Formasjonstrykk)	pdf	0.22

