Generell informasjon

Brønnbane navn	2/8-6
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	VALHALL
Funn	2/8-6 Valhall
Brønn navn	2/8-6
Seismisk lokalisering	LINE 73-23 SP.102
Utvinningstillatelse	006
Boreoperatør	Amoco Norway Oil Company
Boretillatelse	124-L
Boreinnretning	WAAGE DRILL I
Boredager	85
Borestart	07.04.1975
Boreslutt	30.06.1975
Frigitt dato	30.06.1977
Publiseringsdato	16.10.2012
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	YES
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]	27.0
Vanndybde ved midlere havflate [m]	68.0
Totalt målt dybde (MD) [m RKB]	2669.0
Temperatur ved bunn av brønnbanen [°C]	83
Eldste penetrerte alder	EARLY CRETACEOUS
Eldste penetrerte formasjon	SOLA FM
Geodetisk datum	ED50
NS grader	56° 15' 42.91'' N

ØV grader	3° 23' 40.81'' E
NS UTM [m]	6235439.35
ØV UTM [m]	524449.07
UTM sone	31
NPDID for brønnbanen	276

Brønnhistorie

General

Well 2/8-6 was drilled to test the chalk approximately on the crest of the Valhall structure in the southern North Sea. The Valhall structure was mapped as a large northwest-southeast trending anticline at the Tertiary level covering approximately 65 km2 with a vertical relief of ca 490 m. The crestal portion of the Valhall structure, ca 26 km2 in area, was blanketed by a low velocity "bright spot" zone in the overlying Tertiary (Miocene). Such "bright spot" had been observed also over the Hod discovery, the Ekofisk and the Eldfisk. The 2/8-6 and 2/11-2 wells had confirmed that these "bright spot" anomalies were caused by oil and gas present in the younger Tertiary beds, creating extremely low velocities.

Operations and results

Wildcat well 2/8-6 was spudded with the semi-submersible installation Waage Drill I on 7 April 1975 and drilled to TD at 2669 m in the Early Cretaceous Sola Formation. The well was drilled in 38 days. Of these a total of 9 days were lost due to drilling problems; 2 days cementing between the 20 and 13 3/8-inch casing to stop gas entry into the annulus, 1.5 days to repair BOP stack connector, and 5.5 days to combat gas kick and lost circulation while drilling at 2438 m. The well was drilled with seawater and hi-vis mud down to 155 m, with shale-Trol gel mud from 155 m to 1890 m, and with lignosulphonate mud from 1890 m to TD.

The chalk was encountered at 2463 m. Good oil shows were encountered in the intervals 2465 - 2472 m and 2526 - 2551 m with minor oil saturations occurring between the above intervals and down to approximately 2560 m resulting in a gross oil column thickness of 110 m. Log derived porosity in the oil column ranged between 27 and 43%, averaging 33 %. Core porosity ranged between 26 and 52%. The maximum horizontal core permeability was 18 mD; however, most values ranged between 0.1 and 1.0 mD. Water saturations within the two most promising intervals were generally less than 40%. Cores and ditch cuttings showed that the chalk within the upper 12 - 15 m has considerable horizontal and vertical fracturing.

Two core samples were taken from 2465.5 m to 2501.5 m, with 56% recovery. No wire line fluid samples were taken.

The well was permanently abandoned on 30 June 1975 as the oil discovery well on the Valhall Field.

Testing

Five production tests were conducted over the chalk pay. Four mechanically successful tests were conducted over the lower sections. However, the fifth test, which was to test the uppermost pay in the well, failed due to split/collapsed casing.

Test No 1 tested the interval 2570 m to 2582.3 m. The test produced 95 Sm3 oil/day on open choke. GOR was 201 Sm3/Sm3, oil gravity was 34.0 deg API and the gas gravity was 0.665 (air = 1). The interval was supposed to be water saturated, so the oil flow was

possibly due to poor cement bonding.

Test No 1A was a retest of Test No 1, after acidizing. This test produced only small amounts of oil and gas together with bottom sediments and water.

Test No 2 tested the interval 2525.9 m to 2553.3 m. Prior to acidizing the test flowed 89 Sm3 oil/day on a 4/64" choke. GOR was 810 Sm3/Sm3, oil gravity was 33.0 deg API and the gas gravity was 0.69 (air = 1). After acidizing the test produced 175 Sm3 oil/day on a 48/64" choke. The GOR was 134, the oil gravity was 34.0, and the gas gravity was 0.68.

Test No 3 tested the interval 2502.4 m to 2511.6 m. Prior to acidizing test flowed 4 - 26 Sm3 oil/day on open choke. After acidizing the test produced surges of oil, gas, acid water, emulsions and solids with open choke. Oil gravity was 35.6 deg API.

Test No 4 tested the interval 2478 m to 2488.7 m. No acid stimulation was applied. The test produced 135 Sm3 oil/day on a 32/64" choke. GOR was 223 Sm3/Sm3, oil gravity was 38.2 deg API and the gas gravity was 0.714 (air = 1). A maximum temperature of 92.2 degC was measured at gauge depth 2471.3 m in this test.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
192.00	2668.83

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	8089.0	8116.0	[ft]
2	8153.0	8192.0	[ft]

Total kjerneprøve lengde [m]	20.1
Kjerner tilgjengelig for prøvetaking?	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
95	NORDLAND GP

2422	ROGALAND GP
2422	BALDER FM
2432	SELE FM
2463	SHETLAND GP
2463	TOR FM
2485	HOD FM
2603	BLODØKS FM
2606	HIDRA FM
2627	CROMER KNOLL GP
2627	RØDBY FM
2652	SOLA FM

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
276_01_WDSS_General_Information	pdf	0.26

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
276_2_8_6_Completionlog	pdf	1.91
276_2_8_6_Completion_report	pdf	14.39

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	2570	2582	25.4
2.0	2526	2553	19.0
3.0	2502	2514	0.0
4.0	2478	2489	12.5
5.0	2466	2488	0.0

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0	44.900	26.900		
2.0	41.500	11.700		
3.0				
4.0	44.600	15.800		
5.0				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	94	19283	0.850		1152
2.0	262	40691	0.840		872
3.0					
4.0	136	30270	0.830		
5.0					

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
BHC	1284	2668
CBL	2331	2637
CDM	2442	2668
CDM AP	2442	2668
CDM PP	2442	2668
CNL	106	1310
DLL MSFL	1285	2668
FDC	2443	2668
FDC CNL	2443	2668
IES	2444	2667
SRS	1284	2668

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	155.0	36	155.0	0.00	LOT
SURF.COND.	20	366.0	26	381.0	0.00	LOT

INTERM.	13 3/8	1284.0	17 1/2	1298.0	0.00	LOT
INTERM.	9 5/8	2444.0	12 1/4	2446.0	0.00	LOT
LINER	7	2668.0	8 1/2	2669.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
767	1.49			seawater	
1298	1.63			seawater	
2438	1.78			seawater	
2459	1.84			seawater	
2668	1.97			seawater	