Generell informasjon

Brønnbane navn	16/7-7 S
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	SIGYN
Funn	16/7-7 S
Brønn navn	16/7-7
Seismisk lokalisering	ES 9401- INLINE 1158 & X-LINE 5820
Utvinningstillatelse	072
Boreoperatør	Esso Exploration and Production Norway A/S
Boretillatelse	913-L
Boreinnretning	STENA DEE
Boredager	71
Borestart	20.10.1997
Boreslutt	29.12.1997
Frigitt dato	29.12.1999
Publiseringsdato	18.01.2007
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	INTRA DRAUPNE FM SS
2. nivå med hydrokarboner, alder	LATE TRIASSIC
2. nivå med hydrokarboner, formasjon	SKAGERRAK FM
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	78.0
Totalt målt dybde (MD) [m RKB]	2994.0
Totalt vertikalt dybde (TVD) [m RKB]	2730.0
Maks inklinasjon [°]	39
Temperatur ved bunn av brønnbanen [°C]	112
Eldste penetrerte alder	LATE TRIASSIC

Eldste penetrerte formasjon	SKAGERRAK FM
Geodetisk datum	ED50
NS grader	58° 17' 6.53'' N
ØV grader	2° 3' 51.01'' E
NS UTM [m]	6460985.89
ØV UTM [m]	445122.59
UTM sone	31
NPDID for brønnbanen	3244

Brønnhistorie

General

Wildcat well 16/7-7 S is located in the southern end of the Sleipner Terrace in the Norwegian North Sea. The primary objective of the well was to evaluate the resource potential of the eastern segment of the A-North prospect in the Triassic Skagerrak Formation. The western segment had been drilled in 1982 by well 16/7-4, which proved gas and condensate in sandstones of Jurassic/Triassic age.

Operations and results

Well 16/7-7 S was spudded with the semi-submersible installation Stena Dee on 20 October 1997. The well was drilled to 2745 m (2473.3 TVD SS) in the Cretaceous section. The bottom hole assembly was lost and the well was sidetracked. Well was sidetracked from 1777 m and was drilled to TD = 2994 m (2704.8 m TVD SS) in the Skagerrak Formation. The final well with sidetrack was drilled with seawater down to 1146 m and with Ancotec oil based mud from 1146 m to TD.

The well found high-volatile oil in Intra Draupne Formation Sandstone and Skagerrak Formation sandstone, from 2763 m (2517.2 m TVD SS) down to a Free Water Level at 2860.3 m (2596.9 m TVD SS). Logs, wire line pressure measurements, drill stem tests, and shows confirmed the hydrocarbon column. There were no shows or other hydrocarbon indications reported from above or below the reservoir section

Five cores were cut in the interval 2735.5 - 2887.5 m in the Åsgard Formation, the Intra Draupne Formation Sandstone, and the Skagerrak Formation. All cores were cut in the final sidetrack hole. No wire line fluid samples were taken.

The well was permanently abandoned on 29 December 1997 as an oil discovery.

Testing

Two drill stem tests were performed. DST 1 tested the interval 2785 - 2852 m (2535.5 - 2590.2 m TVD SS) in the Skagerrak Formation. The well flowed at maximum 514 Sm3 oil/day on a 44/64" choke. The GOR was ca 517 Sm3/Sm3, the oil gravity was ca 59 deg API, and the specific gas gravity was 0.94 (air = 1). DST 2 tested the interval 2762 - 2852 m (2516.7 - 2590.2 m TVD SS), which includes the Intra Draupne Formation Sandstone in addition to the upper Skagerrak Formation. DST 2 flowed at maximum 563 Sm3 oil/day on a 44/64" choke, and the Production Logging Tool (PLT) indicated that most of the flow in this test came from the Intra Draupne Formation Sandstone. The GOR was ca 450 Sm3/Sm3, the oil gravity was ca 59 deg API, and the specific gas gravity was 0.94 (air = 1). The reservoir temperature was reported as 100 deg C in both tests.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1160.00	2990.00

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	2735.0	2761.6	[m]
2	2767.5	2802.8	[m]
3	2803.5	2838.8	[m]
4	2839.5	2875.5	[m]
5	2875.5	2886.9	[m]

Total kjerneprøve lengde [m]	144.6
Kjerner tilgjengelig for prøvetaking?	YES

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST1	2852.00	2785.00	OIL	09.12.1997 - 16:25	YES
DST		0.00	0.00		13.12.1997 - 23:20	YES
DST	DST 1	2572.00	2565.00	OIL		YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
103	NORDLAND GP
861	UTSIRA FM
1193	HORDALAND GP

2134	ROGALAND GP
2134	BALDER FM
2182	SELE FM
2208	LISTA FM
2323	VÅLE FM
2340	SHETLAND GP
2340	EKOFISK FM
2372	TOR FM
2606	HOD FM
2676	BLODØKS FM
2704	CROMER KNOLL GP
2704	RØDBY FM
2731	SOLA FM
2738	ÅSGARD FM
2763	VIKING GP
2763	INTRA DRAUPNE FM SS
2770	NO GROUP DEFINED
2770	SKAGERRAK FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
3244	pdf	0.52

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
3244_16_7_7_S_COMPLETION_LOG	pdf	2.78
3244_16_7_7_S_COMPLETION_REPORT	pdf	192.17

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	2752	2785	17.4
2.0	2852	2762	17.4

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0	15.600			100
2.0	11.400			100

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	513		0.740	0.940	517
2.0	563	253350	0.740	0.940	450

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
AIT IPL DSI	1146	2985
CCL GR	2545	2853
CMR GR CALI	2775	2944
MDT GR	2764	2904
MWD LWD - DIR GR RES	176	2767
MWD LWD - GR RES DENS NEU	2767	2994
MWD LWD - RLL GR	2803	2887
USIT	180	500
VSP	2740	2970
VSP CSG	360	2730

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	176.0	36	179.0	0.00	LOT
SURF.COND.	13 3/8	1146.0	17 1/2	1153.0	0.00	LOT
INTERM.	9 5/8	2978.0	12 1/4	2994.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
1153	1.56	33.0		OIL BASED	
1781	1.43	35.0		OIL BASED	
2000	1.37	29.0		OIL BASED	
2060	1.43	43.0		OIL BASED	
2185	1.43	42.0		OIL BASED	
2745	1.37	34.0		OIL BASED	
2859	1.43	42.0		OIL BASED	
2993	1.43	39.0		OIL BASED	
2994	1.43	45.0		OIL BASED	