Generell informasjon

Brønnbane navn	30/6-17 R
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	OSEBERG
Funn	30/6-17 R
Brønn navn	30/6-17
Seismisk lokalisering	NH 82 - 214 cell point 424
Utvinningstillatelse	053
Boreoperatør	Norsk Hydro Produksjon AS
Boretillatelse	478-L2
Boreinnretning	TREASURE HUNTER
Boredager	83
Borestart	14.11.1985
Boreslutt	04.02.1986
Frigitt dato	04.02.1988
Publiseringsdato	01.01.2012
Opprinnelig formål	WILDCAT
Gjenåpnet	YES
Årsak til gjenåpning	DRILLING
Innhold	OIL/GAS
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	EARLY JURASSIC
1. nivå med hydrokarboner, formasjon.	COOK FM
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	110.0
Totalt målt dybde (MD) [m RKB]	2650.0
Totalt vertikalt dybde (TVD) [m RKB]	2650.0
Maks inklinasjon [°]	2.75
Temperatur ved bunn av brønnbanen [°C]	104
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	STATFJORD GP
Geodetisk datum	ED50

NS grader	60° 34' 15.77'' N
ØV grader	2° 44' 59.84'' E
NS UTM [m]	6715194.48
ØV UTM [m]	486293.49
UTM sone	31
NPDID for brønnbanen	849

Brønnhistorie

General

Well 30/6-17 was drilled on the Alpha structure on the western side of the Oseberg Field in the northern North Sea. The structure is a tilted and rotated fault block with a Jurassic sequence dipping towards the east. The main objective was to prove hydrocarbons in the Statfjord Formation. Prognosed depth was 200 m into the Statfjord Formation with TD at ca 2682 m. Well 30/6-17 was drilled by Vildkat Explorer to a depth of 615 m where it was temporary abandoned due to technical problems. The re-entry 30/6-17 R was made to fulfil the original objectives.

Operations and results

Wildcat well 30/6-17 was re-entered with the semi-submersible installation Treasure Hunter on 14 August 1985 and drilled to TD at 2650 m in the Early Jurassic Statfjord Formation. The well was drilled without significant technical problems, but about one third of the time was counted as downtime. The main contribution to the excessive downtime was waiting on weather. The well was drilled with KCl/polymer mud from 615 m to 2409 m and with NaCl/polymer mud from 2409 m to TD.

Oil shows were recorded on limestone and dolomite stringers in the Tertiary and Late Cretaceous, beginning at 1650 m and all the way down to near BCU at 2290 m. These oil shows were most frequent, and strongest, in the interval 1750 to 1810 m in the lower part of the Tertiary Hordaland Group. Two gas bearing sandstones units, possibly reworked Brent Group, were found at the BCU (2296 - 2300 m and 2303 - 2308 m).

The prognosed target for the 30/6-17 well was the Statfjord Formation. The well was, however, drilled ca 600 m east of the proposed location at a structurally down flank position. At this position also the Cook Formation was penetrated.

The Cook Formation (2401.5 - 2441 m) consists of medium to fine grained sand sandstones in the upper part, becoming fine to very fine with depth. The sandstones were found oil bearing down to 2419.5 m (free water level from RFT). No gas/oil contact was seen in the well, but the presence of a gas cap was indicated in the DST. The net pay is calculated from logs to 15.9 m, with an average porosity of 26.4% and average water saturation of 40.1%. Cut off criteria were: PHI < 12%, Vsh > 40%, Sw > 60%. The Statfjord Formation (2563 m - TD) was encountered water bearing. Of a gross thickness of 73 m (log) penetrated by the well, 57.6 m was net sand with an average porosity of 24.3%. The RFT results indicate no pressure communication between the Statfjord and the Cook Formations.

A total of six cores were cut. Core 1 at 2324 - 2342.15 m was an attempt to cut a core from the gas bearing sands at BCU, but did not really capture the sands. Cores 2 - 4 were cut in the Cook Formation, while cores 5 and 6 were cut in the Statfjord Formation. There is a discrepancy between loggers and drillers depth of 2 m for cores no 1 - 4, and 4 m for cores no 5 and 6, the logger's depth being the shallower. SFT/RFT pressure tests and sampling were performed in the Cretaceous and Jurassic. In the Cretaceous interval sixteen SFT good pressure tests were taken. A segregated SFT fluid sample

was unsuccessfully attempted taken at 2297.9 m in one of the gas sands. RFT was used for pressure recordings and sampling in the Cook and Statfjord Formations. Twenty one pressure measurements were recorded, and one segregated sample was taken in the Cook Formation at 2408.5 m (5.82 litre oil with some gas and water/filtrate in 1st. chamber).

4 February the well bore was plugged back to the 13 3/8" casing shoe for an up-dip sidetrack to the original target Statfjord Formation. The well is classified as an oil and gas discovery.

Testing

One DST was performed in the Cook Formation at 2401.7 - 2414.7 m. Seven flow periods with different chokes and rates were tested. In the second flow period the well produced oil at a rate of 701.1 Sm3/d and gas at a rate of 110 000 Sm3/d Through a 14.29 mm choke. The gas/oil ratio was 156.9 Sm3/Sm3. The oil gravity was measured to 0.824 g/cc (40.1 API) and gas gravity was 0.662 (air = 1). The GOR varied from 130 to 274 Sm3/Sm3. When the well was produced at higher rates the GOR increased substantially. This indicated the presence of a gas cap, and that the well penetrated the reservoir just below the gas/oil contact. In the three final flows the measured bottom hole temperature stabilised at 97.8 deg C, independent of very variable flow rate and GOR.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
240.00	2650.00

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	2324.0	2342.2	[m]
2	2411.0	2417.0	[m]
3	2423.0	2443.9	[m]
4	2444.0	2445.4	[m]
5	2570.0	2588.3	[m]
6	2588.3	2612.6	[m]

Total kjerneprøve lengde [m]	88.9
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder


2324-2329m


2329-2334m


2334-2339m


2339-2342m


2411-2417m


2417-2423m


2423-2429m


2429-2435m


2435-2441m


2441-2443m


2444-2445m


2570-2576m


2576-2582m


2582-2588m


2588-2588m


2488-2594m


2594-2600m


2600-2606m


2606-2612m


2612-2613m

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST1	2401.00	2414.00		28.10.1986 - 00:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
135	NORDLAND GP
652	UTSIRA FM
876	NO FORMAL NAME
890	HORDALAND GP
942	NO FORMAL NAME
960	NO FORMAL NAME
1280	NO FORMAL NAME
1301	NO FORMAL NAME
1405	NO FORMAL NAME
1463	NO FORMAL NAME
1915	ROGALAND GP
1915	BALDER FM
1993	SELE FM
2057	LISTA FM
2168	VÅLE FM
2181	SHETLAND GP
2181	JORSALFARE FM
2296	UNDEFINED GP
2309	DUNLIN GP
2309	DRAKE FM
2402	COOK FM
2441	AMUNDSEN FM
2563	STATFJORD GP

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
849_01_WDSS_General_Information	pdf	0.24
849_02_WDSS_completion_log	pdf	0.25

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
849_30_6_17_R_Completion_log	pdf	3.65
849_30_7_17_R_Completion_report	pdf	18.67

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsventil størrelse [mm]
1.0	2401	2415	14.3

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

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	701	110000	0.820	0.660	157

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL	492	2544
CDL CNL CAL GR	601	2643
DIL LSS GR SP	560	2643
DLL MSFL	2147	2642
FED	1899	2638
GR	2084	2405
ISF LSS GR	221	609
RFT	2405	2628
SFT	2172	2307
SGR	2378	2644
X-Y CAL	601	2638

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
SURF.COND.	20	601.0	26	615.0	0.00	LOT
INTERM.	13 3/8	1593.0	17 1/2	1621.0	1.74	LOT
INTERM.	9 5/8	2386.0	12 1/4	2406.0	0.00	LOT

LINER	7	2638.0	8 1/2	2650.0	1.70	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
2397	1.50	33.0		water based	
2399	1.50	30.0		water based	
2421	1.32	18.0		water based	
2554	1.32			water based	
2554	1.32	15.0		water based	
2613	1.32	17.0		water based	
2650	1.32	17.0		water based	

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]
849_Formation_pressure_(Formasjonstrykk)	PDF	0.21