Generell informasjon

Brønnbane navn	25/11-15
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	GRANE
Funn	25/11-15 Grane
Brønn navn	25/11-15
Seismisk lokalisering	EU90-161& SP. 142/EB88-115& SP. 2526
Utvinningstillatelse	169
Boreoperatør	Norsk Hydro Produksjon AS
Boretillatelse	704-L
Boreinnretning	TRANSOCEAN 8
Boredager	46
Borestart	10.11.1991
Boreslutt	25.12.1991
Frigitt dato	25.12.1993
Publiseringsdato	20.06.2011
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	PALEOCENE
1. nivå med hydrokarboner, formasjon.	HEIMDAL FM
Avstand, boredekk - midlere havflate [m]	24.0
Vanndybde ved midlere havflate [m]	127.0
Totalt målt dybde (MD) [m RKB]	2035.0
Totalt vertikalt dybde (TVD) [m RKB]	2035.0
Maks inklinasjon [°]	2.5
Temperatur ved bunn av brønnbanen [°C]	85
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	STATFJORD GP
Geodetisk datum	ED50
NS grader	59° 11' 3.5'' N

ØV grader	2° 29' 3.82'' E
NS UTM [m]	6560840.35
ØV UTM [m]	470534.45
UTM sone	31
NPDID for brønnbanen	1872

Brønnhistorie

General

Well 25/11-15 was drilled east of the Balder Field complex on the Utsira High in the North Sea. The main objective was to test the hydrocarbon potential of the Paleocene Heimdal Sand in the Hermod prospect.

Operations and results

Wildcat well 25/11-15 was spudded with the semi-submersible installation Transocean 8 on 10 November 1991 and drilled to TD at 2035 m in the Early Jurassic Statfjord Formation. Due to shallow gas warning an 8 1/2" pilot was drilled from 239 to 390 m. No shallow gas was found. The well was drilled with seawater and viscous bentonite sweeps down to 1312 m and with KCl/PHPA/Polymer mud from 1312 m to TD.

The Balder Formation was encountered at 1660 m. It contained rare sandstone stringers close to the top and these had good oil shows. This was the only oil show recorded outside of the Heimdal Formation. A 64 m thick Heimdal Formation Sandstone was penetrated from 1734 m to 1798 m. The sandstone was oil bearing down to a well-defined OWC at 1787 m. The net pay thickness was 51.88 m with an average porosity of 34.5% and an average Sw of 12.5%.

Seven cores were cut from 1680 m to 1799 m, starting 7 m below the top Sele Formation and ending 1 m below the base of the Heimdal Formation. A total of 20 good RFT pressure points were recorded giving a fluid density of 0.86 g/cc in the hydrocarbon bearing zone. Two fluid samples were attempted, but were abandoned after problems with sand plugging.

The well was permanently abandoned on 25 December 1991 as an oil Discovery.

Testing

A single production test was performed over the interval 1736 - 1775 m in the Heimdal Formation. The well flowed 525 Sm3 oil and 7500 Sm3 gas /day through a 25.4 mm choke. The GOR was 14 Sm3/Sm3 and the oil was 0.940 g/cm3. The gas gravity was 0.640 with 0.3% CO2 and 0.2 ppm H2S. The bottom hole temperature, recorded at 1695.08 m gauge depth, was 76.6 deg C.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1320.00	2035.00

Borekaks tilgjengelig for prøvetaking?	YES

Borekjerner i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1680.0	1696.0	[m]
2	1696.8	1705.8	[m]
3	1708.0	1728.0	[m]
4	1728.0	1740.0	[m]
5	1740.5	1762.6	[m]
6	1762.6	1781.1	[m]
7	1781.1	1796.6	[m]

Total kjerneprøve lengde [m]	113.1
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder


1680-1785m


1685-1689m


1689-1694m


1694-1699m


1699-1704m


1699-1704m


1704-1705m


1708-1713m


1713-1718m


1718-1723m


1723-1728m


1728-1733m


1733-1738m


1738-1745m


1745-1750m


1750-1754m


1754-1759m


1759-1764m


1764-1769m


1769-1774m


1774-1779m


1779-1784m


1784-1789m


1789-1794m


1794-1796m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
1325.0	[m]	SWC	HYDRO
1350.0	[m]	SWC	HYDRO
1375.0	[m]	SWC	HYDRO
1425.0	[m]	SWC	HYDRO
1460.0	[m]	SWC	HYDRO
1485.0	[m]	SWC	HYDRO
1495.0	[m]	SWC	HYDRO
1497.0	[m]	SWC	HYDRO
1570.0	[m]	SWC	HYDRO
1605.0	[m]	SWC	HYDRO
1617.0	[m]	SWC	HYDRO
1640.0	[m]	SWC	HYDRO
1652.0	[m]	SWC	HYDRO
1675.0	[m]	SWC	HYDRO
1678.0	[m]	SWC	HYDRO
1680.0	[m]	C	HYDRO
1684.0	[m]	C	HYDRO
1689.0	[m]	C	HYDRO
1694.0	[m]	C	HYDRO
1696.9	[m]	C	HYDRO
1703.0	[m]	C	HYDRO
1707.0	[m]	SWC	HYDRO
1708.2	[m]	C	HYDRO

1713.0	[m]	C	HYDRO
1717.0	[m]	C	HYDRO
1722.0	[m]	C	HYDRO
1726.4	[m]	C	HYDRO
1730.9	[m]	C	OD
1732.0	[m]	C	HYDRO
1732.8	[m]	C	OD
1735.6	[m]	C	HYDRO
1741.2	[m]	C	HYDRO
1749.0	[m]	C	HYDRO
1756.0	[m]	C	HYDRO
1764.0	[m]	C	HYDRO
1770.5	[m]	C	HYDRO
1777.5	[m]	C	HYDRO
1784.9	[m]	C	HYDRO
1784.9	[m]	C	OD
1791.4	[m]	C	HYDRO
1792.8	[m]	C	HYDRO
1796.0	[m]	C	HYDRO
1815.0	[m]	SWC	HYDRO
1850.0	[m]	SWC	HYDRO
1952.0	[m]	SWC	HYDRO
1964.0	[m]	SWC	HYDRO
1988.0	[m]	SWC	HYDRO
1989.3	[m]	SWC	HYDRO
1990.8	[m]	SWC	HYDRO

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST1	1736.00	1775.00		18.12.1991 - 00:00	YES

Litostratigrafi

Top depth [mMD RKB]	Lithostrat. unit
151	NORDLAND GP

652	UTSIRA FM
750	NO FORMAL NAME
798	HORDALAND GP
798	SKADE FM
1018	NO FORMAL NAME
1032	SKADE FM
1108	NO FORMAL NAME
1491	GRID FM
1506	NO FORMAL NAME
1660	ROGALAND GP
1660	BALDER FM
1674	SELE FM
1678	LISTA FM
1734	HEIMDAL FM
1798	LISTA FM
1807	VÅLE FM
1818	SHETLAND GP
1818	TOR FM
1867	HOD FM
1893	BLODØKS FM
1904	HIDRA FM
1926	CROMER KNOLL GP
1926	RØDBY FM
1942	SOLA FM
1954	ÅSGARD FM
1978	VIKING GP
1978	DRAUPNE FM
1983	STATFJORD GP

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
1872_1	pdf	0.16
1872_2	pdf	1.23
1872_3	pdf	0.46

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
1872_01_WDSS_General_Information	pdf	0.51
1872_02_WDSS_completion_log	pdf	0.15

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
1872_25_11_15_COMPLETION_REPORT_AND_LOG	pdf	17.18

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsventil størrelse [mm]
1.0	1736	1774	25.4

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				76

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	525	7500	0.940	0.640	14

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CST	1290	2006
DIL LSS GR SP AMS	238	1259
DIL LSS GR SP AMS	1274	2018
DLL MSFL LDL CNL NGL SP AMS	1274	2016
MWD - GR RES DIR	150	2035
RFT GR AMS	1485	1504
RFT GR AMS	1661	1997
RFT GR AMS	1735	1736

SHDT GR AMS	1274	2021
VSP	570	2010

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	237.0	36	240.0	0.00	LOT
INTERM.	9 5/8	1273.0	12 1/4	1275.0	1.71	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
238	1.20	19.0	8.0	WATER BASED	12.11.1991
239	1.20	19.0	8.0	WATER BASED	12.11.1991
450	1.20	18.0	4.0	WATER BASED	13.11.1991
1312	1.20	18.0	9.0	WATER BASED	14.11.1991
1312	1.22	19.0	15.0	WATER BASED	19.11.1991
1312	1.20	19.0	11.0	WATER BASED	19.11.1991
1312	1.20	18.0	8.0	WATER BASED	15.11.1991
1530	1.13	20.0	14.0	WATER BASED	19.11.1991
1697	1.15	17.0	8.0	WATER BASED	19.11.1991
1726	1.16	16.0	9.0	WATER BASED	20.11.1991
1726	1.16	16.0	9.0	WATER BASED	22.11.1991
1768	1.19	15.0	9.0	WATER BASED	28.11.1991
1769	1.20	14.0	11.0	WATER BASED	29.11.1991
1769	1.20	14.0	12.0	WATER BASED	02.12.1991
1769	1.35	20.0	14.0	WATER BASED	02.12.1991
1769	1.29	15.0	9.0	WATER BASED	02.12.1991
1769	1.29	15.0	10.0	WATER BASED	03.12.1991
1769	1.29	15.0	9.0	WATER BASED	04.12.1991
1769	1.21	13.0	7.0	WATER BASED	05.12.1991
1776	1.26	17.0	16.0	WATER BASED	06.12.1991
1776	1.27	19.0	14.0	WATER BASED	10.12.1991
1776	1.27	18.0	13.0	WATER BASED	10.12.1991
1776	1.27	18.0	14.0	WATER BASED	11.12.1991
1776	1.26	14.0	13.0	WATER BASED	11.12.1991
1776	1.26	14.0	13.0	WATER BASED	13.12.1991

1776	1.26	14.0	13.0	WATER BASED	16.12.1991
1776	1.26	14.0	13.0	WATER BASED	16.12.1991
1776	1.26	14.0	13.0	WATER BASED	17.12.1991
1776	1.26	14.0	13.0	WATER BASED	18.12.1991
1776	1.25	14.0	13.0	WATER BASED	19.12.1991
1776	1.25	14.0	13.0	WATER BASED	20.12.1991
1776	1.25	12.0	10.0	WATER BASED	23.12.1991
1776	1.28	19.0	15.0	WATER BASED	10.12.1991
1776	1.26	14.0	13.0	WATER BASED	12.12.1991
1776	1.26	14.0	13.0	WATER BASED	16.12.1991
1781	1.15	16.0	9.0	WATER BASED	22.11.1991
1781	1.15	16.0	9.0	WATER BASED	21.11.1991
1906	1.18	18.0	11.0	WATER BASED	22.11.1991
2035	1.18	16.0	10.0	WATER BASED	25.11.1991
2035	1.18	16.0	9.0	WATER BASED	27.11.1991
2035	1.16	17.0	10.0	WATER BASED	25.11.1991
2035	1.17	14.0	8.0	WATER BASED	25.11.1991
2035	1.18	17.0	10.0	WATER BASED	26.11.1991

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]
1872_Formation_pressure_(Formasjonstrykk)	pdf	0.21