



Generell informasjon

Brønnbane navn	16/1-4
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Funn	16/1-4
Brønn navn	16/1-4
Seismisk lokalisering	ST 9109 206/206A & SP. 450
Utvinningstillatelse	167
Boreoperatør	Den norske stats oljeselskap a.s
Boretillatelse	754-L
Boreinnretning	ROSS RIG (2)
Boredager	28
Borestart	17.03.1993
Boreslutt	13.04.1993
Frigitt dato	13.04.1995
Publiseringsdato	29.08.2003
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	GAS/CONDENSATE
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	PRE-DEVONIAN
1. nivå med hydrokarboner, formasjon.	BASEMENT
Avstand, boredekk - midlere havflate [m]	24.0
Vanndybde ved midlere havflate [m]	111.0
Totalt målt dybde (MD) [m RKB]	2010.0
Maks inklinasjon [°]	2.68
Temperatur ved bunn av brønnbanen [°C]	80
Eldste penetrerte alder	PRE-DEVONIAN
Eldste penetrerte formasjon	BASEMENT
Geodetisk datum	ED50
NS grader	58° 51' 55.2" N
ØV grader	2° 17' 56.12" E
NS UTM [m]	6525418.88
ØV UTM [m]	459562.76



UTM sone	31
NPDID for brønnbanen	2072

Brønnhistorie

General

The objectives of exploration well 16/1-4 were to test Paleocene sandstones (Heimdal Formation) in prospect C and Eocene sandstones (Grid Formation) in prospect D. Prospect C was the main target. Oil was the prognosed hydrocarbon type. It was expected to penetrate a pre-Cretaceous sedimentary sequence, although the well location was not optimal for a test of the pre-Cretaceous.

Operations and results

Wildcat well 16/1-4 was spudded with the semi-submersible installation "Deepsea Bergen" on 17 March 1993 and drilled to TD at 2010 m, 146 m into basement rocks. The well was drilled with spud mud / hi-vis pills down to 324 m and with "ANCO 2000" mud from 324 m to TD. Well 16/1-4 penetrated sedimentary rocks of Quaternary, Tertiary, and Cretaceous ages, in addition to basement rocks of unknown age. No pre-Cretaceous sediments were present in the well. In the Tertiary, reservoir quality sandstones were present in the Miocene and the Oligocene (Utsira and Skade Formations) and in the Eocene Grid Formation. The Grid sandstones were thinner than expected. No sandstones were developed in the Paleocene (Rogaland Group) at the well location. The carbonates in the Shetland Group were dated to be of Early Paleocene, Danian age. The lower Cretaceous sediments in well 16/1-4 are 4 m thick (1860 m -1864 m) and consist of clay stone/marls and immature sandstones with grains of igneous rocks similar to the basement rocks below. These sediments are dated to be of Early Aptian age and have been identified as the Sola Formation of the Cromer Knoll Group. The basement rocks consist mainly of brecciated igneous rocks. No hydrocarbon shows were observed in the Grid Formation sandstones. Gas-condensate was encountered in the upper part of the drilled basement section. Cores were cut in the Eocene Grid Formation and in the Hordaland Group shales between upper and lower Grid Formation (cores 1-3), in the Paleocene Balder- and Sele Formations (cores 4-6), and in basement rocks (core 7).

The cores show well-developed clean sandstones in the Grid Formation. The boundary between the Balder- and the Sele Formations is present in core 4. The basement core generally consists of a mafic plutonic rock (gabbro/diorite) with intrusions of a felsic rock (syenite). The rocks are strongly brecciated. Petrologic analysis indicates that the plutonic igneous rocks are hydrothermally altered. FMT samples from 1867.5 m and 1867.4 m in the Basement contained wet gas / condensate. Onshore geochemical analyses indicated low maturity for both the gas and the condensate components. The well was permanently abandoned as a minor gas/condensate discovery on 13 April 1993.

Testing

No drill stem test was performed.

Borekaks i Sokkeldirektoratet



Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
330.00	2010.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1549.0	1559.0	[m]
2	1561.0	1568.7	[m]
3	1590.0	1607.6	[m]
4	1695.0	1699.0	[m]
5	1699.0	1706.0	[m]
6	1708.0	1724.2	[m]
7	1936.0	1941.7	[m]

Total kjerneprøve lengde [m]	68.0
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



1549-1553m



1553-1557m



1557-1559m



1561-1565m



1565-1568m



1590-1594m



1594-1598m



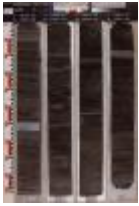
1598-1602m



1602-1606m



1606-1607m



1695-1699m



1703-1706m



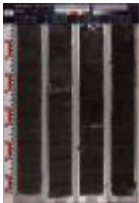
1708-1712m



1712-1716m



1716-1720m



1720-1724m



1724-1724m



1936-1940m



1940-1942m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
357.5	[m]	SWC	OD
402.5	[m]	SWC	OD
454.5	[m]	SWC	OD
480.5	[m]	SWC	OD
536.5	[m]	SWC	OD
574.5	[m]	SWC	OD
613.5	[m]	SWC	OD
646.5	[m]	SWC	OD
650.0	[m]	DC	OD
660.0	[m]	DC	OD
670.0	[m]	DC	OD
673.5	[m]	SWC	OD
680.0	[m]	DC	OD
681.5	[m]	SWC	OD
685.5	[m]	SWC	OD
688.5	[m]	SWC	OD
690.0	[m]	DC	OD
697.5	[m]	SWC	OD
700.0	[m]	DC	OD
710.0	[m]	DC	OD
720.0	[m]	DC	OD
730.0	[m]	DC	OD
732.5	[m]	SWC	OD



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 10.5.2024 - 19:18

740.0 [m]	DC	OD
750.0 [m]	DC	OD
760.0 [m]	DC	OD
763.5 [m]	SWC	OD
767.5 [m]	SWC	OD
768.5 [m]	SWC	OD
770.0 [m]	DC	OD
784.5 [m]	SWC	OD
828.5 [m]	SWC	OD
857.5 [m]	SWC	OD
860.0 [m]	DC	OD
870.0 [m]	DC	OD
880.0 [m]	DC	OD
882.5 [m]	SWC	STATOIL
882.5 [m]	SWC	OD
890.0 [m]	DC	OD
900.0 [m]	DC	OD
906.5 [m]	SWC	STATOIL
906.5 [m]	SWC	OD
910.0 [m]	DC	OD
912.5 [m]	SWC	OD
914.5 [m]	SWC	STATOIL
914.5 [m]	SWC	OD
916.5 [m]	SWC	OD
920.0 [m]	DC	OD
930.0 [m]	DC	OD
940.0 [m]	DC	OD
950.0 [m]	DC	OD
960.0 [m]	DC	OD
970.0 [m]	DC	OD
980.0 [m]	DC	OD
981.5 [m]	SWC	STATOIL
981.5 [m]	SWC	OD
990.0 [m]	DC	OD
1000.0 [m]	DC	OD
1003.5 [m]	SWC	STATOIL
1003.5 [m]	SWC	OD
1010.0 [m]	DC	OD
1020.0 [m]	DC	OD
1030.0 [m]	DC	OD



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 10.5.2024 - 19:18

1030.5 [m]	SWC	STATOIL
1030.5 [m]	SWC	OD
1040.0 [m]	DC	OD
1043.5 [m]	SWC	STATOIL
1043.5 [m]	SWC	OD
1050.0 [m]	DC	OD
1059.5 [m]	SWC	STATOIL
1059.5 [m]	SWC	OD
1060.0 [m]	DC	OD
1070.0 [m]	DC	OD
1074.5 [m]	SWC	STATOIL
1074.5 [m]	SWC	OD
1080.0 [m]	DC	OD
1088.5 [m]	SWC	STATOIL
1088.5 [m]	SWC	OD
1090.0 [m]	DC	OD
1100.0 [m]	DC	OD
1104.5 [m]	SWC	STATOIL
1104.5 [m]	SWC	OD
1110.0 [m]	DC	OD
1120.0 [m]	DC	OD
1130.0 [m]	DC	OD
1140.0 [m]	DC	OD
1144.5 [m]	SWC	STATOIL
1150.0 [m]	DC	OD
1160.0 [m]	DC	OD
1170.0 [m]	DC	OD
1178.5 [m]	SWC	STATOIL
1178.5 [m]	SWC	OD
1180.0 [m]	DC	OD
1183.5 [m]	SWC	OD
1187.5 [m]	SWC	OD
1190.0 [m]	DC	OD
1191.5 [m]	SWC	STATOIL
1191.5 [m]	SWC	OD
1194.5 [m]	SWC	OD
1200.0 [m]	DC	STATOIL
1200.0 [m]	DC	OD
1200.0 [m]	DC	OD
1210.0 [m]	DC	OD



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 10.5.2024 - 19:18

1210.5 [m]	SWC	STATOIL
1210.5 [m]	SWC	OD
1220.0 [m]	DC	STATOIL
1220.0 [m]	DC	OD
1230.0 [m]	DC	OD
1234.5 [m]	SWC	OD
1239.5 [m]	SWC	STATOIL
1240.0 [m]	DC	OD
1250.0 [m]	DC	STATOIL
1260.0 [m]	DC	OD
1266.5 [m]	SWC	STATOIL
1266.5 [m]	SWC	OD
1270.0 [m]	DC	OD
1280.0 [m]	DC	STATOIL
1280.0 [m]	DC	OD
1290.0 [m]	DC	OD
1296.5 [m]	SWC	STATOIL
1296.5 [m]	SWC	OD
1300.0 [m]	DC	OD
1310.0 [m]	DC	STATOIL
1310.0 [m]	DC	OD
1320.0 [m]	DC	OD
1326.5 [m]	SWC	STATOIL
1326.5 [m]	SWC	OD
1330.0 [m]	DC	OD
1340.0 [m]	DC	STATOIL
1340.0 [m]	DC	OD
1350.0 [m]	DC	OD
1354.5 [m]	SWC	STATOIL
1354.5 [m]	SWC	OD
1360.0 [m]	DC	OD
1370.0 [m]	DC	STATOIL
1370.0 [m]	DC	OD
1380.0 [m]	DC	OD
1390.0 [m]	DC	OD
1390.5 [m]	SWC	STATOIL
1390.5 [m]	SWC	OD
1400.0 [m]	DC	OD
1400.5 [m]	SWC	STATOIL
1400.5 [m]	SWC	OD



Faktasider

Brønnbane / Leting

Utskriftstidspunkt: 10.5.2024 - 19:18

1410.5 [m]	SWC	STATOIL
1425.0 [m]	DC	STATOI
1440.0 [m]	DC	STATOI
1452.0 [m]	SWC	STATOI
1462.0 [m]	SWC	STATOI
1476.0 [m]	DC	STATOI
1488.0 [m]	SWC	STATOI
1494.0 [m]	SWC	STATOI
1502.0 [m]	SWC	STATOI
1512.0 [m]	DC	STATOI
1521.0 [m]	DC	STATOI
1532.0 [m]	SWC	STATOI
1536.0 [m]	SWC	STATOI
1545.0 [m]	DC	STATOI
1552.7 [m]	C	STATOI
1555.3 [m]	C	STATOI
1561.6 [m]	C	STATOI
1566.1 [m]	C	STATOI
1568.5 [m]	C	STATOI
1576.0 [m]	SWC	STATOI
1583.0 [m]	SWC	STATOI
1599.4 [m]	C	STATOI
1617.0 [m]	DC	STATOI
1626.0 [m]	SWC	STATOI
1632.0 [m]	SWC	STATOI
1641.0 [m]	DC	STATOI
1650.0 [m]	DC	STATOI
1659.0 [m]	DC	STATOI
1668.0 [m]	DC	STATOI
1678.0 [m]	SWC	STATOI
1688.0 [m]	SWC	STATOI
1695.0 [m]	C	STATOI
1698.5 [m]	C	STATOI
1702.4 [m]	C	STATOI
1708.6 [m]	C	STATOI
1712.4 [m]	C	STATOI
1717.9 [m]	C	STATOI
1724.1 [m]	C	STATOI
1733.0 [m]	SWC	STATOI
1740.0 [m]	SWC	STATOI



1752.0	[m]	DC	STATOI
1764.0	[m]	SWC	STATOI
1772.0	[m]	SWC	STATOI
1780.0	[m]	SWC	STATOI
1797.0	[m]	SWC	STATOI
1845.0	[m]	DC	STATOI
1851.0	[m]	DC	STATOI
1869.0	[m]	DC	STATOI
1878.0	[m]	DC	STATOI
1902.0	[m]	DC	STATOI
1911.0	[m]	DC	STATOI
1926.0	[m]	DC	STATOI

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
135	NORDLAND GP
768	UTSIRA FM
855	UNDIFFERENTIATED
918	HORDALAND GP
918	SKADE FM
1170	NO FORMAL NAME
1539	GRID FM
1556	NO FORMAL NAME
1584	GRID FM
1626	NO FORMAL NAME
1686	ROGALAND GP
1686	BALDER FM
1696	SELE FM
1734	LISTA FM
1817	VÅLE FM
1834	SHETLAND GP
1834	EKOFISK FM
1860	CROMER KNOLL GP
1860	SOLA FM
1864	BASEMENT

Spleisede logger





Dokument navn	Dokument format	Dokument størrelse [KB]
2072	pdf	0.29

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
2072_1	pdf	1.64
2072_2	pdf	0.96

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
2072_16_1_4_S_COMPLETION_REPORT_AND_LOG	pdf	21.43

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL GR	500	1438
CNL	1438	2001
COREGUN	357	1982
DIFL ACL ZDL GR	100	2001
FMT HP GR	1544	1925
FMT HP GR	1867	1867
HR-DIP GR	1442	2000
MWD - GR RES DIR	321	1549
MWD - GR RES DIR	1571	1590
MWD - GR RES DIR	1608	1695
MWD - GR RES DIR	1724	1936
MWD - GR RES DIR	1942	2010
VSP	500	1000
VSP	600	1986
VSP	1000	1985

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	195.0	36	195.0	0.00	LOT
INTERM.	20	314.0	26	314.0	1.42	LOT
INTERM.	13 3/8	1440.0	17 1/2	1440.0	1.93	LOT
OPEN HOLE		2010.0	12 1/4	2010.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
316	1.03			WATER BASED	
321	1.03			WATER BASED	
362	1.20	18.0		WATER BASED	
1100	1.25	23.0		WATER BASED	
1445	1.25	28.0		WATER BASED	
1450	1.25	29.0		WATER BASED	
1571	1.25	23.0		WATER BASED	
1628	1.25	20.0		WATER BASED	
1699	0.00	20.0		WATER BASED	
1708	1.25	22.0		WATER BASED	
1723	1.25	21.0		WATER BASED	
1819	1.25	20.0		WATER BASED	
1868	1.25	23.0		WATER BASED	
1914	1.25	24.0		WATER BASED	
1942	1.25	23.0		WATER BASED	
2010	1.25	23.0		WATER BASED	