



Generell informasjon

Brønnbane navn	31/2-5
Type	EXPLORATION
Formål	APPRAISAL
Status	SUSPENDED
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	TROLL
Funn	31/2-1 (Troll Vest)
Brønn navn	31/2-5
Seismisk lokalisering	79421 SP. 274
Utvinningstillatelse	054
Boreoperatør	A/S Norske Shell
Boretillatelse	263-L
Boreinnretning	WEST VENTURE OLD
Boredager	57
Borestart	26.10.1980
Boreslutt	21.12.1980
Frigitt dato	21.12.1982
Publiseringsdato	07.11.2005
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL/GAS
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	SOGNEFJORD FM
Avstand, boredekk - midlere havflate [m]	32.0
Vanndybde ved midlere havflate [m]	333.0
Totalt målt dybde (MD) [m RKB]	2532.0
Totalt vertikalt dybde (TVD) [m RKB]	2532.0
Maks inklinasjon [°]	1.5
Temperatur ved bunn av brønnbanen [°C]	79
Eldste penetrerte alder	TRIASSIC
Eldste penetrerte formasjon	HEGRE GP
Geodetisk datum	ED50
NS grader	60° 46' 16.2" N



ØV grader	3° 25' 53.46" E
NS UTM [m]	6737535.76
ØV UTM [m]	523507.71
UTM sone	31
NPDID for brønnbanen	210

Brønnhistorie

General

Wildcat well 31/2-5 is located in the southern part of the oil province in the Troll West area, some 6 km west of the discovery well 31/2-1, in a downthrown fault block. The objectives of the well were to test presence and nature of hydrocarbons in a structure west of the main gas reservoir; to test lateral variation in reservoir characteristics westwards; to investigate possible causes for the difference in flat spot appearance in this fault block; and to get a good geologic identification of the various seismic reflectors for lateral extrapolation of well data.

Operations and results

Problems were experienced during positioning and anchoring of semi-submersible installation West Venture for the wildcat well 31/2-5. After 6 days efforts the installation had to be repositioned 25 m from the intended location and the anchors were successfully laid out and tensioned. The well was spudded on 26 October 1980 and drilled to TD at 2532 m in the Triassic Hegre Group. The well was drilled with seawater and viscous pills down to 443 m, with gelled seawater from 443 m to 810 m, with KCl/polymer mud from 810 m to 1807 m, and with seawater/gel from 1807 m to TD.

Well 31/2-5 confirmed that the Late Jurassic Sognefjord Formation sandstone reservoir was well developed also in the western part of the structure. A gas column was penetrated from 1536 m to 1579 m (43 m), followed by a 21 m thick oil column down to an OWC at 1600 m. Good oil shows continued down to 1644.5 m. The GOC was found at the same depth as seen in the other wells in the area. The most interesting observation in this well was the presence of the thick oil column below the gas, some 9 m thicker than seen in any of the other wells, and the oil was encountered in a section of the reservoir with very good clean sand. It is yet too early to explain the difference in oil thickness, and the importance of a thicker oil column in a good sand will remain unknown until a full production test of the oil has been carried out. A few carbonate cemented, apparently field-wide bands occur with very low poroperm values. A seal over the structure is provided by the Paleocene claystones.

A total of 21 cores (125.8 m) were cut using five Christensen core heads with a total recovery of 98.51 m (78%) from 1511.7 - 1652 m. RFT sampling of pressure points and two successful fluid samples (gas at 1578 m and oil/gas at 1597 m) were consistent with the fluid contacts assessed from the electrical logs. The oil sampled from 1597 m had a gravity of 30.5 deg API compared to 25 deg API in other 31/2 wells.

The well was plugged from 1204 m to 1465 m and suspended on 21 December 1980 as an oil and gas appraisal well.

Testing

No drill stem test was performed.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
450.00	2532.00
Borekaks tilgjengelig for prøvetaking?	YES

Borekjerne i Sokkeldirektoratet

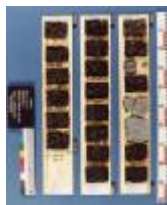
Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1511.7	1514.3	[m]
2	1514.8	1517.4	[m]
4	1536.0	1538.0	[m]
5	1539.5	1540.5	[m]
6	1542.0	1545.6	[m]
7	1547.0	1563.7	[m]
8	1555.0	1555.2	[m]
9	1555.5	1564.5	[m]
10	1565.0	1573.4	[m]
11	1573.4	1573.9	[m]
12	1573.9	1577.4	[m]
13	1589.5	1589.6	[m]
14	1590.5	1599.5	[m]
15	1599.5	1604.0	[m]
16	1604.0	1611.9	[m]
17	1613.0	1615.4	[m]
18	1616.0	1625.0	[m]
19	1625.0	1633.4	[m]
20	1634.0	1642.9	[m]
21	1643.0	1651.6	[m]

Total kjerneprøve lengde [m]	108.5
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



1512-1513m



1515-1516m



1536-1538m



1539-1540m



1542-1544m



1544-1545m



1547-1549m



1549-1552m



1555-1555m



1552-1553m



1555-1558m



1558-1560m



1560-1563m



1563-1564m



1565-1567m



1567-1570m



1570-1573m



1573-1573m



1573-1574m



1573-1576m



1576-1577m



1589-1589m



1590-1593m



1593-1595m



1595-1598m



1598-1599m



1599-1602m



1602-1604m



1604-1606m



1606-1609m



1609-1611m



1613-1615m



1616-1618m



1618-1621m



1621-1624m



1624-1625m



1625-1627m



1627-1630m



1630-1633m



1633-1633m



1634-1636m



1636-1639m



1639-1642m



1642-1643m



1643-1645m



1645-1648m



1648-1651m



1651-1652m

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
365	NORDLAND GP
788	HORDALAND GP
788	NO FORMAL NAME
815	NO FORMAL NAME
1346	ROGALAND GP
1346	BALDER FM
1396	SELE FM
1426	LISTA FM
1533	SHETLAND GP



1536	VIKING GP
1536	SOGNEFJORD FM
1617	HEATHER FM
1693	FENSFJORD FM
1789	KROSSFJORD FM
1860	HEATHER FM
1957	BRENT GP
2070	DUNLIN GP
2070	DRAKE FM
2201	COOK FM
2277	AMUNDSEN FM
2308	JOHANSEN FM
2387	AMUNDSEN FM
2404	STATFJORD GP
2471	HEGRE GP

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
210	pdf	0.32

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
210_01_WDSS_General_Information	pdf	0.15
210_02_WDSS_completion_log	pdf	0.18

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
210_01_Drilling_programme	pdf	1.18
210_02_Drilling_programme_enclosure	pdf	1.01
210_03_Final_Well_Report_by_EXLOG	pdf	7.30
210_04_Well_resume_by_Shell	pdf	1.36
210_05_Well_Summary_by_Anchor	pdf	1.58





210 06 Biostratigraphy appendix 3 by Core lab	pdf	4.06
210 07 Final Core report core 1-21 by GECO	pdf	2.90
210 08 Evaluation of core data by Geco	pdf	9.86
210 09 Evaluation of core data b GECO	pdf	5.69
210 0 Completion Report	pdf	4.28
210 10 Geological invest of cores vol-1 by SHELL	pdf	17.20
210 11 Geological invest of cores vol-2 by SHELL	pdf	13.11
210 12 Geological invest of cores vol-3 by SHELL	pdf	75.61
210 13 Palynofacies Jurassic investigation b y SHELL	pdf	7.24
210 14 Special core analysis study by CORELAB	pdf	2.17
210 15 Special core analysis by CORELAB	pdf	1.85
210 16 Special core description by SHELL	pdf	2.09
210 17 Special core description encl 1	pdf	0.15
210 18 Special core description encl 2	pdf	0.15
210 19 Special core description encl 3	pdf	0.14
210 20 Special core description encl 4	pdf	0.16
210 21 Special core description encl 5	pdf	0.15
210 22 Special core description encl 6	pdf	0.12
210 23 Special core description encl 7	pdf	0.15
210 24 Reservoir fluid study Supplementary Report by CORELAB	pdf	0.28
210 25 Well test report by STATOIL	pdf	1.40
210 26 Well testing rep No 84-2301-10 by FLOPETROL	pdf	17.02
210 27 Well testing rep No 81-230-23 by FLOPETROL	pdf	8.22
210 28 Well testing rep No 81-2301-23 by FLOPETROL	pdf	18.40
210 29 Bottom hole pressure calc by FLOPETROL	pdf	1.78
210 30 Final report Rock Mineral Analysis GECO	pdf	0.16
210 31 High acc pres temp measure by FLOPETROL	pdf	1.10
210 32 Notes on oil zone test by SHELL	pdf	0.89
210 33 Pressure survey report Run 1 by Sperry	pdf	2.14





210 34 Pressure survey report Run 2 by Sperry	pdf	0.91
210 35 Pressure survey report by Sperry	pdf	1.09
210 36 SDP Bottom Hole Press ELS 84 24 by Flopetrol	pdf	5.83
210 37 SDP Bottom Hole Press ELS 84 25 by FLOPETROL	pdf	6.03
210 38 SDP Bottom Hole Press ELS 84 27 by Flopetrol	pdf	1.21
210 39 SDP Bottom Hole Press ELS 84 28 by Flopetrol	pdf	1.13
210 40 Source rock evaluation by SHELL	pdf	0.42
210 41 Source rock evaluation encl 1	pdf	0.05
210 42 Geochem analysis of crude oil by SHELL	pdf	0.58
210 43 One well study by STATOIL	pdf	1.66
210 44 One well study encl 1	pdf	0.81
210 45 Partial Reservoir Fluid Study by Corelab	pdf	0.20
210 46 Particle size analysis by Anchor	pdf	0.42
210 47 Quick look evaluation by STATOIL	pdf	0.67
210 48 Quick look evaluation encl 1	pdf	0.14
210 49 Quick look evaluation encl 2	pdf	0.14
210 50 Quick look evaluation encl 3	pdf	0.14
210 51 Quick look evaluation encl 4	pdf	0.14
210 52 Reservoir Fluid Study by Corelab	pdf	0.80
210 53 Reservoir Fluid Study by Corelab	pdf	0.81
210 54 Rock mineral analysis by Geco	pdf	0.11
210 55 Exploration drilling proposal by Shell	pdf	0.54
210 56 Exploration drilling proposal encl 1	pdf	0.76
210 57 Exploration drilling proposal encl 2	pdf	0.21
210 58 Exploration drilling proposal encl 3	pdf	0.39
210 59 Exploration drilling proposal encl 4	pdf	10.45
210 60 Exploration drilling proposal encl 5	pdf	12.59
210 61 Exploration drilling proposal encl 6	pdf	21.53
210 62 Exploration drilling proposal encl 7	pdf	20.70
210 63 Exploration drilling proposal encl 8	pdf	0.33

Borestrengtester (DST)





Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	1582	1588	0.0

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]	Gasstygde rel. luft	GOR [m3/m3]
1.0					

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL GR	362	1465
CBL VDL GR	810	1798
DLL MSFL GR	1468	1804
FDC CNL CAL GR	439	821
FDC CNL CAL GR	807	1467
FDC CNL CAL GR	1468	1805
FDC CNL CAL GR	1800	2527
HDT	1468	1805
HDT	1800	2524
HDT.2	1468	1805
HDT.2	1800	2522
ISF BHC GR SP	363	820
ISF BHC GR SP	630	1468
ISF BHC GR SP	1468	1805
ISF BHC GR SP	1800	2526
LDT GR	1468	1806
LSS GR	1468	1805
RFT	1468	1805
TMP	300	1261
TMP	330	1630
TMP	1390	1630
VELOCITY	363	2526



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	443.0	36	446.0	0.00	LOT
CONDUCTOR	30	446.0	36	446.0	0.00	LOT
SURF.COND.	20	810.0	26	820.0	1.55	LOT
INTERM.	13 3/8	1470.0	17 1/2	1480.0	1.60	LOT
INTERM.	9 5/8	1801.0	12 1/4	1812.0	1.69	LOT
OPEN HOLE		2532.0	8 1/2	2532.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
414	1.03			seawater	
473	1.05	36.0		seawater	
788	1.20	75.0		waterbased	
1270	1.21	54.0		waterbased	
1448	1.25	55.0		waterbased	
1806	1.15	50.0		waterbased	

Tynnslip i Sokkeldirektoratet

Dybde	Enhet
1540.00	[m]
1545.00	[m]
1556.00	[m]
1559.00	[m]
1567.00	[m]
1570.00	[m]
1574.00	[m]
1601.00	[m]
1605.00	[m]
1608.00	[m]
1618.00	[m]
1621.00	[m]
1626.00	[m]



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]
210 Formation pressure (Formasjonstrykk)	pdf	0.22

