



Generell informasjon

Brønnbane navn	31/5-3
Type	EXPLORATION
Formål	APPRAISAL
Status	P&A
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	TROLL
Funn	31/2-1 (Troll Vest)
Brønn navn	31/5-3
Seismisk lokalisering	8007 - 134 & SP 566
Utvinningstillatelse	085
Boreoperatør	Saga Petroleum ASA
Boretillatelse	405-L
Boreinnretning	TREASURE SAGA
Boredager	61
Borestart	10.04.1984
Boreslutt	09.06.1984
Frigitt dato	09.06.1986
Publiseringsdato	06.06.2006
Opprinnelig formål	APPRAISAL
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]	26.0
Vanndybde ved midlere havflate [m]	327.0
Totalt målt dybde (MD) [m RKB]	2250.0
Totalt vertikalt dybde (TVD) [m RKB]	2249.0
Maks inklinasjon [°]	3.2
Temperatur ved bunn av brønnbanen [°C]	90
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	DRAKE FM
Geodetisk datum	ED50
NS grader	60° 44' 37.17" N



ØV grader	3° 26' 20.44" E
NS UTM [m]	6734474.49
ØV UTM [m]	523936.46
UTM sone	31
NPDID for brønnbanen	101

Brønnhistorie

General

Well 31/5-3 was drilled in the southern part of the Troll West Field. The main objectives were to appraise and test the reservoir qualities and the lithology of the Late Jurassic Sognefjord Formation.

Operations and results

Well 31/5-3 was spudded with the semi-submersible installation Treasure Saga on 10 April 1984 and drilled to TD at 2250 m in the Late Jurassic Drake Formation. At 1426 m circulation was lost, and 450 bbls mud was lost to formation before the well was stabilized. The well was drilled with spud mud down to 950 m, with KCl/polymer mud from 950 m to 1497 m, and with a Pro-wate/NaCl-brine/pro-salt mud from 1497 m to TD.

The well proved the existence of a stratigraphy ranging from Lower Jurassic to Quarternary. The Tertiary and Quaternary sections were mainly composed of claystones, with a minor sand developed in Pleistocene at the base of the Nordland Group. The Jurassic was composed of sandstone and siltstones in the Viking and Brent Groups, and mainly claystone with an interbedded sandstone layer in the Dunlin Group. One major unconformity was found between Early Portlandian and Maastrichtian. Four other unconformities were also observed in the well, from Aalenian to Bathonian, from Early Kimmeridgian to Early Portlandian, from Late Oligocene to Pliocene, and one intra-Oligocene.

The Sognefjord Formation was hydrocarbon bearing with a 39.5 m hydrocarbon column, of which 17.5 m was gas and 22 m was oil. Top reservoir was found at 1555 m, the GOC was at 1572.5 m, and the OWC at 1594.5 m. Oil shows persisted further down, but decreased from 1595 m and disappeared below 1622 m. No other interval in the well was hydrocarbon bearing.

Three cores were cut from 1550 m to 1622.5 m in the Late Jurassic Sognefjord Formation. FMT gas samples were taken at 1557 m and 1567. Three more FMT fluid samples were taken in the oil zone at 1577 m, 1591 m, and at 1592 m.

The well was permanently abandoned on 9 June 1984 as a gas and oil appraisal well.

Testing

Two drill stem tests were performed in the Sognefjord Formation. Both the intervals were gravel packed. DST # 1 from 1606 - 1610 m produced formation water. DST # 2 from 1582.3 - 1586.3 m produced 1100 Sm³/day of oil with a constant GOR of approximately 55Sm³/Sm³. Gas coning occurred as the rate was increased to 1550 m³/day. The GOR stabilized at its original value as the rate was reduced to 1050 Sm³/day

Borekaks i Sokkeldirektoratet



Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
440.00	2250.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	1550.0	1568.0	[m]
2	1568.0	1594.4	[m]
3	1595.0	1622.0	[m]

Total kjerneprøve lengde [m]	71.4
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



1550-1555m



1555-1560m



1560-1565m



1565-1568m



1568-1573m



1573-1578m



1578-1583m



1583-1588m



1588-1593m



1593-1594m



1595-1600m



1600-1605m



1605-1610m



1610-1615m



1615-1620m



1620-1622m

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST2	1582.30	1586.30	OIL	02.06.1984 - 19:00	YES

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
353	NORDLAND GP
780	HORDALAND GP
1340	ROGALAND GP
1340	BALDER FM
1402	SELE FM
1477	LISTA FM
1547	VIKING GP
1547	DRAUPNE FM
1555	SOGNEFJORD FM
1666	HEATHER FM
1718	FENSFJORD FM
1848	KROSSFJORD FM
1905	HEATHER FM
1992	BRENT GP
2103	DUNLIN GP
2103	DRAKE FM

Spleisede logger





Dokument navn	Dokument format	Dokument størrelse [KB]
101	pdf	0.35

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
101_01_WDSS_General_Information	pdf	0.22
101_02_WDSS_completion_log	pdf	0.22

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
101_01_31_5_3_Completion_Report_and_Completion_log	pdf	12.08

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsventil størrelse [mm]
1.0	1606	1618	0.0
2.0	1582	1586	44.5

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				71
2.0				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0					
2.0	1230	59040		0.650	48

Logger





Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CDL CNL GR	1497	1911
CDL CNL GR	1905	2244
CDL GR	425	964
CDL GR	950	1506
DIFL LSBHC GR	425	965
DIFL LSBHC GR	950	1512
DIFL LSBHC GR	1497	1914
DIFL LSBHC GR	1905	2246
DIPLOG	1492	1900
DIPLOG	1905	2243
DLL MLL GR	1497	1912
FMT	1555	1663
FMT	1948	2168
GR	327	430
SPECTRALOG	1497	1906
VELOCITY	970	2230

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	425.0	36	430.0	0.00	LOT
SURF.COND.	20	950.0	26	963.0	1.89	LOT
INTERM.	13 3/8	1497.0	17 1/2	1515.0	1.57	LOT
INTERM.	9 5/8	1905.0	12 1/4	2236.0	1.73	LOT
OPEN HOLE		2253.0	8 1/2	2253.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	flytegrense [Pa]	Type slam	Dato, måling
426	1.03			WATER BASED	30.04.1984
430	1.03			WATER BASED	30.04.1984
440	1.08			WATER BASED	30.04.1984
791	1.14			WATER BASED	30.04.1984
837	1.16			WATER BASED	30.04.1984
963	1.20	47.0	25.0	WATER BASED	30.04.1984



963	1.20	47.0	25.0	WATER BASED	30.04.1984
963	1.18			WATER BASED	30.04.1984
965	1.14			WATER BASED	30.04.1984
1080	1.30	49.0	28.0	WATER BASED	30.04.1984
1177	1.25	47.0	24.0	WATER BASED	30.04.1984
1395	1.30	49.0	28.0	WATER BASED	30.04.1984
1426	1.30	46.0	24.0	WATER BASED	30.04.1984
1515	1.30	46.0	23.0	WATER BASED	30.04.1984
1515	1.30	46.0	23.0	WATER BASED	30.04.1984
1515	1.30	46.0	23.0	WATER BASED	30.04.1984
1518	1.18	80.0	60.0	WATER BASED	30.04.1984
1568	1.18	78.0	50.0	WATER BASED	30.04.1984
1595	1.00	78.0	51.0	WATER BASED	03.05.1984
1623	1.18	69.0	45.0	WATER BASED	03.05.1984
1730	1.18	77.0	52.0	WATER BASED	03.05.1984
1880	1.18	80.0	54.0	WATER BASED	03.05.1984
1915	1.18	79.0	56.0	WATER BASED	03.05.1984
1915	1.18	78.0	53.0	WATER BASED	03.05.1984
1915	1.18	85.0	60.0	WATER BASED	03.05.1984
1915	1.19	87.0	58.0	WATER BASED	04.05.1984
1915	1.19	75.0	52.0	WATER BASED	07.05.1984
1915	1.19	87.0	58.0	WATER BASED	04.05.1984
1915	1.18	78.0	53.0	WATER BASED	03.05.1984
1915	1.18	85.0	60.0	WATER BASED	03.05.1984
1915	1.19	75.0	52.0	WATER BASED	07.05.1984
2236	1.20	61.0	42.0	WATER BASED	07.05.1984
2250	1.20	61.0	42.0	WATER BASED	08.05.1984
2250	0.00	61.0	42.0	WATER BASED	07.06.1984

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]
101 Formation pressure (Formasjonstrykk)	pdf	0.22

