General information

Wellbore name	31/6-8
Type	EXPLORATION
Purpose	APPRAISAL
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	TROLL
Discovery	31/6-1 (Troll Øst)
Well name	31/6-8
Seismic location	NH 8202 - 338 SP. 249
Production licence	085
Drilling operator	Norsk Hydro Produksjon AS
Drill permit	462-L
Drilling facility	TREASURE SEEKER
Drilling days	42
Entered date	14.04.1985
Completed date	25.05.1985
Release date	25.05.1987
Publication date	06.06.2006
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL/GAS
Discovery wellbore	NO
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	SOGNEFJORD FM
Kelly bushing elevation [m]	25.0
Water depth [m]	300.0
Total depth (MD) [m RKB]	2138.0
Final vertical depth (TVD) [m RKB]	2138.0
Maximum inclination [°]	2
Bottom hole temperature [°C]	79
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	COOK FM
Geodetic datum	ED50
NS degrees	60° 33' 21.36'' N
EW degrees	3° 40' 39.07'' E
NS UTM [m]	6713676.33
EW UTM [m]	537156.05

UTM zone	31
NPDID wellbore	466

Wellbore history

General

Appraisal well 31/6-8 was drilled in the south-west corner of the Troll East gas province, 50 m due north of well 31/6-7, which was junked and abandoned for technical reasons. The main objectives were to determine the lateral extent of the reservoir, to determine the fluid contacts in the Sognefjord Formation, and to obtain the best possible seismic correlation within the reservoir from well 31/6-1. In addition, an elaborate testing program was planned to obtain a number of reservoir engineering parameters.

Operations and results

Well 31/6-8 was spudded with the semi-submersible installation Treasure Seeker on 14 April 1985 and drilled to TD at Drilling the well proceeded without significant problems. The interval down to setting depth for 20" casing was not logged, as this interval was considered covered by logs from well 31/6-7. The well was drilled with spud mud down to 700 m, with KCl Polymer mud from 700 m to 1465 m, and with "drill in fluid" (NaCl, polymers, and CaCO3) from 1465 m to TD. An 8 m3 Imcospot/Pipelax pill was spotted at 2054 m to free the pipe, which was stuck.

The Sognefjord Formation (1507-1661 m) was found gas bearing from 1507 m to 1573.5 m and oil bearing from 1573.5 to 1578.5 m where the oil/water contact was found. The oil zone was determined from petrophysical evaluation, core plug saturations and segregated sample recoveries. The hydrocarbon-bearing reservoir consisted of predominantly very fine to fine grained sandstones with some interbedded siltstones. The gross hydrocarbon column was 71.5 m and the net pay calculated to 67 m with an average porosity of 33% and average water saturation of 16.2 %. No hydrocarbon indications were recorded above 1507 m or below 1579 m.

Twelve cores were cut in the Late to Middle Jurassic Sognefjord and Heather Formations from 1489 m to 1700 m (148 m total recovery). FMT segregated samples were taken at 1573.2 m (0.7 Sm3 gas, 0.5 l water/filtrate, and 6 l oil in 2.75 gallon chamber) and at 1578.8 m (0.1 Sm3 gas, 0.5 l oil, and 9.8 l water/filtrate in 2.75 gallon chamber).

The well was temporarily suspended 25 may 1985, and subsequently re-entered for testing 20 July 1985.

Testing

No drill stem test was performed

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
420.00	2137.00

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
2	1503.0	1512.0	[m]
3	1520.0	1530.0	[m]
4	1537.0	1551.0	[m]
5	1555.0	1566.0	[m]
6	1567.5	1586.0	[m]
7	1586.0	1604.0	[m]
8	1604.5	1623.0	[m]
9	1623.0	1641.0	[m]
10	1641.5	1659.0	[m]
11	1663.0	1673.0	[m]
12	1681.5	1699.0	[m]

Total core sample length [m]	162.0
Cores available for sampling?	YES

Core photos

1503-1508m

1508-1513m

1513-1514m

1520-1525m

1525-1530m

1537-1542m

1542-1547m

1547-1551m

1560-1565m

1555-1560m

1565-1566m 1567-1572m 1572-1577m 1577-1582m 1582-1586m

1586-1591m

1591-1596m

1596-1601m

1601-1604m

1604-1609m

1609-1614m

1614-1619m

1619-1623m

1623-1628m

1628-1633m

1633-1638m

1638-1641m

1641-1646m

1646-1651m

1651-1656m

1656-1659m

1663-1669m

1669-1673m

1681-1687m

1687-1693m

1693-1699m

1699-1700m

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
325	NORDLAND GP
538	HORDALAND GP
985	ROGALAND GP
985	BALDER FM
1112	SELE FM
1224	LISTA FM
1256	SHETLAND GP
1256	HARDRÅDE FM
1264	UNDIFFERENTIATED
1371	CROMER KNOLL GP
1371	RØDBY FM
1385	ÅSGARD FM
1412	VIKING GP
1412	DRAUPNE FM
1485	HEATHER FM
1507	SOGNEFJORD FM
1661	HEATHER FM
1705	FENSFJORD FM
1927	KROSSFJORD FM
1965	HEATHER FM
1985	BRENT GP
2008	DUNLIN GP
2008	DRAKE FM
2025	COOK FM

Composite logs

Document name	Document format	Document size [MB]
466	pdf	0.30

Documents - older Norwegian Offshore Directorate WDSS reports and other related documents

Document name	Document format	Document size [MB]
466_01_WDSS_General_Information	pdf	0.37
466_02_WDSS_completion_log	pdf	0.20

Documents - reported by the production licence (period for duty of secrecy expired)

Document name	Document format	Document size [MB]
466_05_31_6_8_Test_report	pdf	29.32
466_05_31_6_8_TEST_report_encl1	pdf	3.67
466_05_31_6_8_TEST_report_encl2	pdf	0.76
466_05_31_6_8_TEST_report_encl3	pdf	2.42

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	1538	1558	23.8
2.0	1523	1523	0.0
3.0	1416	1418	0.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				
2.0				
3.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0		26000			
2.0					
3.0					

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL CCL GR	1200	1596
CET GR	1200	1596
CST	750	1442
CST	1446	1659
CST	1662	2124

DLL MSFL GR CAL	1437	1655
HDT	1100	1442
ISF LSS GR SP	687	2140
LDL CNL GR CAL	687	1442
LDL CNL NGS GR CAL	1437	2142
RFT	1487	1640
RFT	1559	1578
SHDT	1437	1659
SHDT	1647	2142
TEMP	400	1400
VELOCITY	687	2140

Casing and leak-off tests

Casing type	Casing diam. [inch]	Casing depth [m]	Hole diam. [inch]	Hole depth [m]	LOT/FIT mud eqv. [g/cm3]	Formation test type
CONDUCTOR	30	411.0	36	416.0	0.00	LOT
SURF.COND.	20	687.0	26	700.0	1.54	LOT
INTERM.	13 3/8	1437.0	17 1/2	1465.0	1.59	LOT
INTERM.	9 5/8	1646.0	12 1/4	1660.0	1.57	LOT
OPEN HOLE		2138.0	8 1/2	2138.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
416	1.35			WATER BASED	16.04.1985
700	1.08	10.0	20.0	WATER BASED	17.04.1985
700	1.10	6.0	13.0	WATER BASED	18.04.1985
700	0.00			WATER BASED	19.04.1985
700	1.20	28.0	18.0	WATER BASED	21.04.1985
700	1.20	18.0	7.0	WATER BASED	21.04.1985
700	1.10	6.0	13.0	WATER BASED	18.04.1985
700	1.20	28.0	18.0	WATER BASED	21.04.1985
700	1.20	18.0	7.0	WATER BASED	21.04.1985
700	1.20	18.0	7.0	WATER BASED	23.04.1985
700	1.20	18.0	7.0	WATER BASED	23.04.1985
860	1.20	19.0	8.0	WATER BASED	25.04.1985
946	1.16			WATER BASED	21.08.1985

1083	1.27	18.0	5.0	WATER BASED	26.04.1985
1083	1.27	18.0	6.0	WATER BASED	25.04.1985
1083	1.27	18.0	5.0	WATER BASED	26.04.1985
1171	1.24	18.0	9.5	WATER BASED	29.04.1985
1185	1.16			WATER BASED	21.08.1985
1221	1.24	16.0	7.0	WATER BASED	29.04.1985
1221	1.23	16.0	8.0	WATER BASED	30.04.1985
1221	1.24	17.0	8.0	WATER BASED	29.04.1985
1221	1.24	16.0	7.0	WATER BASED	29.04.1985
1221	1.23	16.0	8.0	WATER BASED	30.04.1985
1354	1.23	15.0	11.0	WATER BASED	02.05.1985
1465	1.25	18.0	12.0	WATER BASED	02.05.1985
1465	1.25	19.0	12.0	WATER BASED	06.05.1985
1465	1.25	19.0	11.0	WATER BASED	06.05.1985
1465	1.26	22.0	10.0	WATER BASED	06.05.1985
1465	1.25	19.0	12.0	WATER BASED	06.05.1985
1465	1.25	19.0	11.0	WATER BASED	06.05.1985
1465	1.26	22.0	10.0	WATER BASED	06.05.1985
1482	1.16			WATER BASED	21.08.1985
1482	1.16			WATER BASED	22.08.1985
1482	1.16			WATER BASED	29.08.1985
1482	1.16			WATER BASED	14.08.1985
1482	1.16			WATER BASED	19.08.1985
1489	1.20	10.0	8.0	WATER BASED	07.05.1985
1504	1.20	15.0	10.0	WATER BASED	08.05.1985
1512	1.16			WATER BASED	05.09.1985
1512	1.16			WATER BASED	06.09.1985
1512	1.16			WATER BASED	09.09.1985
1537	1.20	25.0	14.0	WATER BASED	09.05.1985
1562	1.16			WATER BASED	29.08.1985
1562	1.16			WATER BASED	30.08.1985
1562	1.16			WATER BASED	03.09.1985
1567	1.20	49.0	12.0	WATER BASED	10.05.1985
1570	1.16	15.0	14.0	WATER BASED	11.09.1985
1580	0.00			WATER BASED	23.05.1985
1605	1.20	13.0	8.0	WATER BASED	13.05.1985
1615	1.20	9.0	5.0	WATER BASED	26.07.1985
1615	1.20	9.0	5.0	WATER BASED	30.07.1985
1615	1.03			WATER BASED	30.07.1985
1615	1.03			WATER BASED	31.07.1985

1615	1.16			WATER BASED	02.08.1985
1615	1.16			WATER BASED	06.08.1985
1615	1.20	9.0	5.0	WATER BASED	30.07.1985
1615	1.03			WATER BASED	30.07.1985
1615	1.03			WATER BASED	31.07.1985
1615	1.16			WATER BASED	02.08.1985
1615	1.16			WATER BASED	06.08.1985
1619	1.16			WATER BASED	08.08.1985
1619	1.16			WATER BASED	09.08.1985
1619	1.16			WATER BASED	13.08.1985
1619	1.16			WATER BASED	08.08.1985
1619	1.16			WATER BASED	09.08.1985
1619	1.16			WATER BASED	13.08.1985
1619	1.16			WATER BASED	06.08.1985
1641	1.20	13.0	8.0	WATER BASED	13.05.1985
1660	1.20	13.0	8.0	WATER BASED	13.05.1985
1660	1.20	11.0	9.0	WATER BASED	14.05.1985
1660	1.20	13.0	7.0	WATER BASED	15.05.1985
1660	1.20	13.0	8.0	WATER BASED	21.05.1985
1660	1.20	13.0	7.0	WATER BASED	15.05.1985
1660	1.20	13.0	8.0	WATER BASED	21.05.1985
1660	1.20	11.0	9.0	WATER BASED	14.05.1985
1663	1.20	13.0	7.0	WATER BASED	21.05.1985
1689	1.20	13.0	8.0	WATER BASED	21.05.1985
1871	1.20	15.0	10.0	WATER BASED	21.05.1985
2059	1.20	15.0	8.0	WATER BASED	21.05.1985
2138	0.00				25.07.1985
2138	1.20				26.07.1985
2138	1.20	14.0	9.0	WATER BASED	22.05.1985
2138	1.20				26.07.1985
2138	1.20	14.0	9.0	WATER BASED	21.05.1985
2138	1.20	14.0	9.0	WATER BASED	22.05.1985

Pressure plots

The pore pressure data is sourced from well logs if no other source is specified. In some wells where pore pressure logs do not exist, information from Drill stem tests and kicks have been used. The data has been reported to the NPD, and further processed and quality controlled by IHS Markit.

Document name	Document format	Document size [MB]
466_Formation_pressure_(Formasjonstrykk)	pdf	0.20