General information

Wellbore name	7/11-10 S
Type	EXPLORATION
Purpose	APPRAISAL
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	MIME
Discovery	7/11-5 Mime
Well name	7/11-10
Seismic location	NH 8601 ROW 206
Production licence	070
Drilling operator	Norsk Hydro Produksjon AS
Drill permit	641-L
Drilling facility	TRANSOCEAN 8
Drilling days	68
Entered date	05.07.1990
Completed date	10.09.1990
Release date	10.09.1992
Publication date	19.10.2006
Purpose - planned	APPRAISAL
Reclassified from wellbore	7/11-10 SR
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	ULA FM
Kelly bushing elevation [m]	23.5
Water depth [m]	78.5
Total depth (MD) [m RKB]	4566.0
Final vertical depth (TVD) [m RKB]	4241.0
Maximum inclination [°]	50
Bottom hole temperature [°C]	169
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SMITH BANK FM
Geodetic datum	ED50
NS degrees	57° 7' 12.51'' N
EW degrees	2° 29' 10.56'' E
NS UTM [m]	6331018.86

EW UTM [m]	468891.06
UTM zone	31
NPDID wellbore	1563

Wellbore history

General

Well 7/11-10 S was designed to drill the 7/11-A structure on the Mime Field, on the eastern margin of the Central Graben. The structure is salt induced and consists of a northern, western, eastern and a southern compartment. Oil is proven in the northern compartment by the 7/11-5 well in the Late Jurassic Ula formation sandstone. The reservoir sandstone was deposited in a shallow marine environment mainly by storm episodes into an approximately 100 km long and 20 km wide "fairway". Shales of the Late Jurassic Farsund- and Mandal formations make up the cap-rock. The well was to be vertical down to 2002 m MSL and then kicked off towards the target with an angle of 33.28 degrees. The primary objective was a long term test production from the oil-bearing Ula formation of Area 1 in the northern compartment. Secondary objective was to improve the geological control, and coring was supposed to give good information about the silica cementation above and below the OWC. Shallow gas was indicated in the interval from 318 m - to 425 m MSL.

Operations and results

Appraisal well 7/11-10 S was spudded with the semi-submersible installation Transocean 8 on 5 July 1990 and drilled to TD at 4566 m in the Triassic Smith Bank Formation. No shallow gas of importance, only background gas, was encountered while drilling. Gumbo problems were encountered in the upper part of the 17 1/2" hole, but hole conditions improved after increasing the mud weight. The well was kicked off at 2010 m in 40° direction, and the angle built to 35° at 2610 m. While pulling out, the bit came out with three cones lost. The string got stuck at 3740 m. Fishing operation was unsuccessful, and a cement plug was set above the fish. The hole was kicked off from the cement plug at 3550 m and sidetracked. No severe problems were experienced in the last part of the hole except from low penetration rate at times and some tight spots on the bit trips. The top hole was drilled with seawater and hi-vis pills down to 621 m, the 17 1/2" section was drilled with KCl/PHPA/PAC mud from 621 m to 1941 m, the 12 1/4" section from 1941 m to 4220 m was drilled oil based, and the final 8 1/2 section to TD was again drilled water based.

The average petrophysical results from The Ula Formation and uppermost Triassic in well 7/11-10S was comparable to the discovery well 7/11-5. A total of 27 meters of net pay was penetrated, with porosities ranging from 13% up to 21%. The entire analysed Jurassic interval (4340.5-4395.5 m /4010.25-4062.75 m TVDMSL) in well 7/11-10S was regarded as oil bearing. The deepest oil observed in the well was at 4388 m (4053.5 m TVDMSL), which was regarded as an ODT. The lowermost 5 meters did not contain hydrocarbons, probably due to the extremely tight nature of the rock. This tight interval might also have acted as a vertical barrier, preventing hydrocarbons migrating into the somewhat more permeable Triassic sandstones. Also well 7/11-5 contained this impermeable section.

No logs were run beneath 4493 m. Three cores were cut in the Ula Formation and uppermost Triassic, from 4350 to 4403 m. No fluid samples were obtained in the well bore

The well was suspended on 10 September 1990 as an oil appraisal well.

Testing

The perforated interval for the test production was 4347 m through 4381 m (4016.6-4048.9 m TVDMSL). The long term production test was however to be performed in a re-entry.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
200.00	4566.00

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
1	4350.0	4359.3	[m]
2	4366.0	4388.7	[m]
3	4389.0	4402.5	[m]

Total core sample length [m]	45.5
Cores available for sampling?	YES

Core photos


4350-4354m


4355-4359m


4366-4370m


4371-4375m


4376-4380m


4381-4385m


4386-4388m


4389-4393m


4394-4398m


4399-4402m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
4200.0	[m]	DC	RRI
4210.0	[m]	DC	RRI
4220.0	[m]	DC	RRI
4230.0	[m]	DC	RRI
4240.0	[m]	DC	RRI

4250.0	[m]	DC	RRI
4260.0	[m]	DC	RRI
4270.0	[m]	DC	RRI
4280.0	[m]	DC	RRI
4290.0	[m]	DC	RRI
4300.0	[m]	DC	RRI
4310.0	[m]	DC	RRI
4320.0	[m]	DC	RRI
4330.0	[m]	DC	RRI
4340.0	[m]	DC	RRI
4352.7	[m]	C	RRI
4355.5	[m]	C	RRI
4368.7	[m]	C	RRI
4369.8	[m]	C	RRI
4374.3	[m]	C	RRI
4382.6	[m]	C	RRI
4386.9	[m]	C	RRI
4390.7	[m]	C	RRI
4392.9	[m]	C	RRI
4394.6	[m]	C	RRI
4395.7	[m]	C	RRI
4402.4	[m]	C	RRI
4410.0	[m]	DC	RRI
4420.0	[m]	C	RRI
4430.0	[m]	DC	RRI
4440.0	[m]	DC	RRI
4450.0	[m]	DC	RRI
4460.0	[m]	DC	RRI
4470.0	[m]	DC	RRI
4480.0	[m]	DC	RRI
4490.0	[m]	DC	RRI
4500.0	[m]	DC	RRI

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
102	NORDLAND GP
1510	HORDALAND GP
3177	ROGALAND GP

3177	BALDER FM
3205	SELE FM
3237	LISTA FM
3271	MAUREEN FM
3440	SHETLAND GP
3440	EKOFISK FM
3528	TOR FM
3947	HOD FM
4148	HIDRA FM
4198	CROMER KNOLL GP
4198	RØDBY FM
4268	TYNE GP
4268	MANDAL FM
4311	FARSUND FM
4341	VESTLAND GP
4341	ULA FM
4395	HEGRE GP
4395	SMITH BANK FM

Composite logs

Document name	Document format	Document size [MB]
1563_7_11_10_S	pdf	0.51

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

Document name	Document format	Document size [MB]
1563_01_WDSS_General_Information	pdf	0.22
1563_02_WDSS_completion_log	pdf	0.23

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

Document name	Document format	Document size [MB]
1563_7_11_10_S_COMPLETION_REPORT_AND_LOG	pdf	15.20

Logs

Log type	Log top depth [m]	Log bottom depth [m]
AMS	4205	4384
CBL VDL CCL GR	3269	4054
CBL VDL CCL GR	4053	4501
CBL VDL GR	1250	1969
DIL LSS GR	1894	4209
DITE LSS GR AMS	4205	4505
DITE MSFL GR	4205	4494
GR	125	1950
LDL CNL GR	3205	4486
MWD - GR RES DIR	102	4566
VELOCITY	1950	4060

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	185.0	36	192.0	0.00	LOT
INTERM.	18 5/8	597.0	24	620.0	0.00	LOT
INTERM.	13 3/8	1941.0	17 1/2	1957.0	0.00	LOT
INTERM.	9 5/8	4205.0	12 1/4	4220.0	1.97	LOT
LINER	7	4564.0	8 1/2	4566.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
192	1.20			WATER BASED	10.07.1990
192	1.03			WATER BASED	10.07.1990
359	1.60	15.0	9.0	WATER BASED	27.09.1990
425	1.07	6.0	7.0	WATER BASED	11.07.1990
611	1.10	9.0	10.0	WATER BASED	12.07.1990
611	1.20	15.0	8.0	WATER BASED	13.07.1990
618	1.20	15.0	8.0	WATER BASED	16.07.1990
1102	1.30	17.0	13.0	WATER BASED	16.07.1990

1499	1.44	23.0	13.0	WATER BASED	16.07.1990
1874	1.50	22.0	9.0	WATER BASED	17.07.1990
1957	1.53	21.0	11.0	WATER BASED	18.07.1990
1957	1.52	21.0	10.0	WATER BASED	19.07.1990
1957	1.50	21.0	12.0	WATER BASED	20.07.1990
2277	1.52	54.0	12.0	OIL BASED	23.07.1990
2741	1.51	50.0	10.0	OIL BASED	23.07.1990
2865	1.52	49.0	12.0	OIL BASED	23.07.1990
2952	1.53	51.0	11.0	OIL BASED	24.07.1990
3137	1.52	53.0	10.0	OIL BASED	25.07.1990
3167	1.52	51.0	11.0	OIL BASED	26.07.1990
3313	1.51	51.0	10.0	OIL BASED	27.07.1990
3388	1.52	53.0	11.0	OIL BASED	30.07.1990
3406	1.53	54.0	10.0	OIL BASED	30.07.1990
3434	1.53	50.0	11.0	OIL BASED	09.08.1990
3471	1.52	56.0	10.0	OIL BASED	30.07.1990
3488	1.52	55.0	11.0	OIL BASED	31.07.1990
3529	1.52	56.0	10.0	OIL BASED	01.08.1990
3557	1.51	55.0	12.0	OIL BASED	10.08.1990
3608	1.52	54.0	9.0	OIL BASED	13.08.1990
3626	1.52	56.0	12.0	OIL BASED	02.08.1990
3682	1.52	53.0	9.0	OIL BASED	13.08.1990
3725	1.52	49.0	9.0	OIL BASED	03.08.1990
3760	1.52	49.0	9.0	OIL BASED	06.08.1990
3760	1.52	41.0	9.0	OIL BASED	06.08.1990
3760	1.52	41.0	9.0	OIL BASED	06.08.1990
3810	1.51	46.0	10.0	OIL BASED	13.08.1990
3841	1.52	46.0	11.0	OIL BASED	14.08.1990
3937	1.52	42.0	9.0	OIL BASED	15.08.1990
3998	1.52	44.0	10.0	OIL BASED	16.08.1990
4020	1.58	21.0	5.0	WATER BASED	28.09.1990
4075	1.52	47.0	9.0	OIL BASED	17.08.1990
4078	1.52	46.0	9.0	OIL BASED	20.08.1990
4099	1.52	44.0	10.0	OIL BASED	20.08.1990
4116	1.52	47.0	10.0	OIL BASED	20.08.1990
4126	1.52	47.0	9.0	OIL BASED	21.08.1990
4138	1.52	44.0	9.0	OIL BASED	22.08.1990
4159	1.52	49.0	10.0	OIL BASED	23.08.1990
4208	1.52	51.0	10.0	OIL BASED	27.08.1990
4220	1.52	43.0	9.0	OIL BASED	27.08.1990

4220	1.52	43.0	8.0	OIL BASED	29.08.1990
4220	1.54	23.0	6.0	WATER BASED	29.08.1990
4220	1.52	43.0	7.0	OIL BASED	27.08.1990
4366	1.55	21.0	8.0	WATER BASED	31.08.1990
4397	1.54	20.0	6.0	WATER BASED	03.09.1990
4503	1.54	19.0	7.0	WATER BASED	03.09.1990
4511	1.58	20.0	5.0	WATER BASED	02.10.1990
4511	1.53	16.0	4.0	WATER BASED	02.10.1990
4511	1.50	21.0	6.0	WATER BASED	02.10.1990
4517	1.60	22.0	4.0	WATER BASED	10.09.1990
4517	1.60	22.0	4.0	WATER BASED	10.09.1990
4566	1.57	24.0	10.0	WATER BASED	03.09.1990
4566	1.57	23.0	10.0	WATER BASED	04.09.1990
4566	1.60	24.0	10.0	WATER BASED	05.09.1990
4566	1.60	25.0	9.0	WATER BASED	06.09.1990
4566	1.60	25.0	9.0	WATER BASED	07.09.1990