General information

Wellbore name	2/7-15
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	ELDFISK
Discovery	2/7-8
Well name	2/7-15
Seismic location	PG 2/7-K SP.12
Production licence	018
Drilling operator	Phillips Petroleum Company Norway
Drill permit	239-L
Drilling facility	HAAKON MAGNUS
Drilling days	125
Entered date	29.01.1980
Completed date	02.06.1980
Release date	02.06.1982
Publication date	26.10.2009
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	PALEOCENE
1st level with HC, formation	EKOFISK FM
2nd level with HC, age	LATE CRETACEOUS
2nd level with HC, formation	TOR FM
Kelly bushing elevation [m]	25.0
Water depth [m]	69.0
Total depth (MD) [m RKB]	4423.0
Final vertical depth (TVD) [m RKB]	4423.0
Maximum inclination [°]	1.2
Bottom hole temperature [°C]	151
Oldest penetrated age	LATE JURASSIC
Oldest penetrated formation	HAUGESUND FM
Geodetic datum	ED50
NS degrees	56° 23' 46.82'' N
EW degrees	3° 18' 54.63'' E

NS UTM [m]	6250375.82
EW UTM [m]	519456.06
UTM zone	31
NPDID wellbore	225

Wellbore history

General

Well 2/7-15 was drilled on the Eldfisk East structure in the Feda Graben of the southern North Sea. The well was an appraisal of the productive Danian - Late Cretaceous chalks found in 2/7-8. The well also had an explorative objective, namely to prove the existence of productive Jurassic sandstones on the East Eldfisk structure. Projected total depth was 14500 ft (4420 m).

The well is Reference well for the Ran Sandstone Units.

Operations and results

Well 2/7-15 was spudded with the semi-submersible installation Haakon Magnus (now Borgsten Dolphin) on 29 January 1980 and drilled to TD at 4423 m in the Late Jurassic Haugesund Formation. A 2.3 Sm3 influx was taken while drilling at 3667.7 m (3672.8 m logger's depth) in the Farsund Formation. The well was shut in. After shut-in the circulation was lost, probably because the formation broke down. The circulation was resumed by appropriate mud adjustments, and the return mud then contained 3% oil and was slightly gas-cut. The well was drilled with bentonite, Flosal and lime down to 503 m, with Drispac mud from 503 m to 1387 m, and with Drispac/lignosulphonate mud from 1387 m to TD.

The Danian - Late Cretaceous section tested small quantities of hydrocarbons. Shows were encountered, often in fractures, on cored siltstone and claystone in the Early Cretaceous Ran Sandstone Units and Åsgard Formation, but testing proved the section to be generally tight. The logs indicated a 2 m HC-bearing sandstone stringer at 3672.8 m (where the influx was taken while drilling), but no shows were reported from this depth. Isolated shows, in the form of dull yellow fluorescence, were reported also on cored claystone in the Farsund Formation at 4030 m and 4035 m. The 48 m thick Eldfisk Formation at 4133 m had somewhat lower gamma ray readings than the Farsund Formation above and Haugesund Formation below, but the lithology was mainly shale/claystone with only traces of sandstone.

Seven conventional cores were taken. The six first were cut consecutively in the interval from 3481.5 m in the Ran Sandstone Units and down to 3554.6 m in the Åsgard Formation. Core no 7 was cut at 4027.7 - 4039.6 m in the Farsund Formation. No wire line fluid samples were taken.

The well was permanently abandoned on 2 June 1980 as an oil appraisal.

Testing

Three zones were drill stem tested between 19 and 27 May 1980. These were both the Early and Late Cretaceous zones, and the Danian. All zones were perforated with two shots per foot. The following results are after acidizing:

DST 1 perforated the intervals 3450.3 - 3454.0 m, 3463.1 - 3466.2 m, 3471.1 - 3473.5 m, 3475.3 - 3478.4 m, and 3482.6 - 3487.5 m in the Ran Sandstone. During the 4 3/4 hour flow period the well failed to clean up. Final bottom hole flowing pressure at 3443.3 m was 4076 psig on 64/64" choke, and the maximum temperature was 247 def F (119.4

deg C). Only traces of oil and gas were observed, and the water was measured at 104 Sm3/day. The well was shut in for 4 1/3 hours before the packer was unseated for a maximum bottom hole pressure of 9632 psig

DST 2 perforated the interval 3031.2 - 3035.8 m in the Late Cretaceous Tor Formation. The well was flowed for 5.07 hours on 36/64" choke. Final bottom hole flowing pressure at 3026.1 m was 4347 psig and the last measured rate was 50.4 Sm3 water and 6.8 Sm3 oil/day. Maximum temperature was 217 deg F (102.8 deg C). The pressure built up to 6645 psig during a 5.8 hours shut in period.

DST 3 perforated the intervals 3013.3 - 3022.4 m (Ekofisk Formation) and 3031.2 - 3035.8 m (Tor Formation) for a commingled test. The well was flowed for 13.13 hours on 32/64" choke. Final bottom hole flowing pressure was 3934 psig at 3014.2 m. The final rate was 32.8 Sm3 water and 13.4 Sm3 oil/day. Maximum temperature was 218 deg F (103.3 deg C). After 16 hours build up the bottom hole pressure was 6443 psig.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
515.00	4423.00

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	11422.0	11459.0	[ft]
2	11459.0	11472.0	[ft]
3	11474.0	11514.0	[ft]
4	11514.0	11562.0	[ft]
5	11562.0	11602.0	[ft]
6	11602.0	11619.0	[ft]
7	13214.0	13246.6	[ft]

Total core sample length [m]	69.4
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
3465.0	[m]	DC	HRS
3526.0	[m]	DC	HRS
3572.0	[m]	DC	HRS

3581.0	[m]	DC	HRS
3590.0	[m]	DC	HRS
3603.0	[m]	DC	HRS
3618.0	[m]	DC	HRS
3630.0	[m]	DC	HRS
3651.0	[m]	DC	HRS
3670.0	[m]	DC	HRS
3690.0	[m]	DC	HRS
3712.0	[m]	DC	HRS
3734.0	[m]	DC	HRS
3755.0	[m]	DC	HRS
3776.0	[m]	DC	HRS
3795.0	[m]	DC	HRS
3816.0	[m]	DC	HRS
3837.0	[m]	DC	HRS
3859.0	[m]	DC	HRS
3880.0	[m]	DC	HRS

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
94	NORDLAND GP
1689	HORDALAND GP
2898	ROGALAND GP
2898	BALDER FM
2911	SELE FM
2950	LISTA FM
2982	VÅLE FM
3008	SHETLAND GP
3008	EKOFISK FM
3029	TOR FM
3136	HOD FM
3368	BLODØKS FM
3372	HIDRA FM
3419	CROMER KNOLL GP
3419	RØDBY FM
3450	RAN SANDSTONE UNITS
3498	ÅSGARD FM
3584	TYNE GP

3584	MANDAL FM
3606	FARSUND FM
4133	ELDFISK FM
4181	HAUGESUND FM

Geochemical information

Document name	Document format	Document size [MB]
225_1	pdf	2.14
225_2	pdf	3.58
225_3	pdf	10.55

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

Document name	Document format	Document size [MB]
225_01_WDSS_General_Information	pdf	0.26
225_02_WDSS_completion_log	pdf	0.25

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

Document name	Document format	Document size [MB]
225_01_2_7_15_Completion_report	pdf	22.32

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3425	3462	25.4
2.0	3006	3010	14.3
3.0	2988	3010	13.4

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0	66.000	30.000		
2.0	46.000	30.000		

3.0	44.000	30.000		

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0					
2.0	7				
3.0	13				

Logs

Log type	Log top depth [m]	Log bottom depth [m]
DLL BHC GR CAL	3179	3683
DLL BHC GR CAL	3692	4429
FDC CNL GR CAL	2743	2190
FDC CNL GR CAL	3179	3684
FDC CNL GR CAL	3691	4430
GR	0	61
HDT	1369	3190
HDT	3179	3702
HDT	3693	4423
ISF MSFL BHC GR CAL	487	1322
ISF MSFL BHC GR CAL	1368	3191
VELOCITY	1369	4420

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	128.0	36	128.0	0.00	LOT
SURF.COND.	20	464.0	26	478.0	1.14	LOT
INTERM.	13 3/8	1342.0	17 1/2	1362.0	1.92	LOT
INTERM.	9 5/8	3150.0	12 1/4	3160.0	1.98	LOT
LINER	7	3664.0	8 1/2	3674.0	2.19	LOT
OPEN HOLE		4398.0	5 7/8	4398.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
153	1.02	100.0		WATER BASED	02.06.1980
382	1.02	100.0		WATER BASED	02.06.1980
655	1.02	35.0		WATER BASED	02.06.1980
1089	1.22	40.0		WATER BASED	02.06.1980
1289	1.77	47.0		WATER BASED	02.06.1980
1387	1.24	43.0		WATER BASED	02.06.1980
1859	1.76	54.0		WATER BASED	02.06.1980
2165	1.76	54.0		WATER BASED	02.06.1980
2785	1.75	59.0		WATER BASED	02.06.1980
3042	1.71	58.0		WATER BASED	02.06.1980
3185	1.71	44.0		WATER BASED	02.06.1980
3493	1.23	55.0		WATER BASED	02.06.1980
3629	1.78	58.0		WATER BASED	02.06.1980
3699	1.94	58.0		WATER BASED	02.06.1980
3860	1.94	52.0		WATER BASED	02.06.1980
3995	1.94	58.0		WATER BASED	02.06.1980
4027	1.94	62.0		WATER BASED	02.06.1980
4216	1.80	80.0		WATER BASED	02.06.1980
4349	1.93	55.0		WATER BASED	02.06.1980
4423	1.93	57.0		WATER BASED	02.06.1980

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]
225_Formation_pressure_(Formasjonstrykk)	pdf	0.23