

**General information**

Wellbore name	2/10-1 S
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	2/10-1
Seismic location	LINE PG 560740 SP.117
Production licence	031
Drilling operator	Phillips Petroleum Company Norway
Drill permit	141-L
Drilling facility	OCEAN VIKING
Drilling days	221
Entered date	16.09.1975
Completed date	23.04.1976
Release date	23.04.1978
Publication date	01.07.2004
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS SHOWS
Discovery wellbore	NO
Kelly bushing elevation [m]	27.0
Water depth [m]	66.0
Total depth (MD) [m RKB]	4609.0
Final vertical depth (TVD) [m RKB]	4267.2
Oldest penetrated age	CARBONIFEROUS
Oldest penetrated formation	NO GROUP DEFINED
Geodetic datum	ED50
NS degrees	56° 7' 32.15" N
EW degrees	3° 18' 6.68" E
NS UTM [m]	6220236.98
EW UTM [m]	518765.86
UTM zone	31
NPDID wellbore	284



Wellbore history

General

The 2/10-1 S "South East Eel" well is located in the Grensen Nose, close to the southern tip of the Norwegian sector. It was drilled in the Tertiary basin of the North Sea approximately 20 km south of the Embla discovery. The primary objective horizons were the Early Cretaceous - Late Jurassic clastic sediments and the Danian - Late Cretaceous limestones. Seismic data were interpreted as wedging out of the Early Cretaceous - Late Jurassic sediments up-dip to the west of the well location. These sediments produced oil in the Phillips 2/7-3 and 2/7-9 wells while Late Jurassic turbidite sands were present in the Eldfisk 2/7-1 well. In addition a small Danian/Late Cretaceous structure was defined on a seismic. The 2/7-2 well a few miles to the north in a similar geological situation produced 345 BOPD from the Danian. Secondary objectives were Tertiary and possible Rotliegendes sandstones.

Operations and results

Exploration well 2/10-1 S was spudded with the semi-submersible installation Ocean Viking on 16 September 1975 and drilled deviated to TD at 4609 m (4267 m TVD RKB) in rocks of possibly Carboniferous age. While drilling the 8 1/2" section at 4028 m the weather deteriorated. The drill string was hung off before the rig started to drift, and had to be towed to Stavanger. Winds were reported up to 30 m/s and waves up to 22 m. Altogether 34 days were lost before the rig again was on location and could continue drilling. The well was drilled with sea water and gel down to 442 m and with PAC/sea water with 4% oil from 442 m to TD.

No oil shows were encountered during the drilling, however, a gas kick was noted when drilling into the top of the Rotliegendes sandstone section. No testing was carried out due to engineering difficulties although three drill stem tests in the Permian were planned. The well was drilled as per progress down to the base of the Cretaceous sediments. No clastics were developed in the Tertiary whilst the Danian/Late Cretaceous limestones were wet. The limestones exhibited good porosity. The Early Cretaceous consisted of the Rødbby Formation and the Mandal Formation. No sands were present. Below the Cretaceous, the sediments wedging out proved to be older than expected. No Jurassic sediments were encountered. The well went first into barren red measures of possible Triassic age and then into Zechstein carbonates followed by the Rotliegendes. Three sandstone members (net 35 m thick) were developed in upper part of the Rotliegendes, the upper sand showing a good gas kick drilling at 4343 m, while the Lower Rotliegendes consisted of interbedded shales and volcanics. The possibly Carboniferous sediments at TD also consisted of interbedded shales and volcanics. Although the well proved to be different from the prognosis, the sand development and shows in the Rotliegendes are very encouraging. No cores were cut in the well and no fluid samples taken. The well was permanently abandoned on 23 April 1976 as a well with strong gas shows in Rotliegendes.

Testing

Preparations for testing were made and two zones in Rotliegendes in the interval 4337 m to 4371 m were perforated, but the test was not carried out due to a leak in the casing.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1197.86	4609.19

Cuttings available for sampling?	NO
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**Palynological slides at the Norwegian Offshore Directorate**

Sample depth	Depth unit	Sample type	Laboratory
4267.0	[m]	DC	OD
4276.0	[m]	DC	OD
4285.0	[m]	DC	OD
4295.0	[m]	DC	OD
4304.0	[m]	DC	OD
4319.0	[m]	DC	OD
4325.0	[m]	DC	OD
4334.0	[m]	DC	OD
4343.0	[m]	DC	OD
4353.0	[m]	DC	OD
4362.0	[m]	DC	OD
4371.0	[m]	DC	OD
4380.0	[m]	DC	OD
4389.0	[m]	DC	OD
4398.0	[m]	DC	OD
4407.0	[m]	DC	OD
4417.0	[m]	DC	OD
4423.0	[m]	DC	OD
4429.0	[m]	DC	OD
4438.0	[m]	DC	OD
4447.0	[m]	DC	OD
4456.0	[m]	DC	OD
4465.0	[m]	DC	OD
4474.0	[m]	DC	OD
4484.0	[m]	DC	OD
4493.0	[m]	DC	OD
4502.0	[m]	DC	OD
4511.0	[m]	DC	OD
4520.0	[m]	DC	OD
4529.0	[m]	DC	OD
4538.0	[m]	DC	OD
4551.0	[m]	DC	OD
4557.0	[m]	DC	OD
4566.0	[m]	DC	OD
4575.0	[m]	DC	OD
4584.0	[m]	DC	OD



4593.0	[m]	DC	OD
4602.0	[m]	DC	OD

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
93	NORDLAND GP
1595	HORDALAND GP
3233	ROGALAND GP
3233	BALDER FM
3249	SELE FM
3294	LISTA FM
3360	SHETLAND GP
3360	EKOFISK FM
3406	TOR FM
3581	HOD FM
4058	HIDRA FM
4091	CROMER KNOLL GP
4091	RØDBY FM
4265	TYNE GP
4265	MANDAL FM
4271	ZECHSTEIN GP
4297	ROTLIEGEND GP
4529	NO GROUP DEFINED

Composite logs

Document name	Document format	Document size [MB]
284	pdf	0.47

Geochemical information

Document name	Document format	Document size [MB]
284_1	pdf	1.53



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

Document name	Document format	Document size [MB]
284_01_WDSS_General_Information	pdf	0.26

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

Document name	Document format	Document size [MB]
284_1_Completion_Report_&_Completion_log	pdf	15.70

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BCS GR	129	4606
CBL	3962	4328
CBL	3962	4328
CBL	4039	4589
CCL PERF	4267	4462
CNL	4127	4589
FDC	3267	4135
IES	441	4606
TEMP	30	3261

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	130.0	36	130.0	0.00	LOT
SURF.COND.	20	441.0	26	462.0	0.00	LOT
INTERM.	13 3/8	1240.0	17 1/2	1250.0	0.00	LOT
INTERM.	9 5/8	3267.0	12 1/4	3277.0	0.00	LOT
LINER	7	4135.0	8 1/2	4144.0	0.00	LOT
LINER	5	4609.0	6	4609.0	0.00	LOT

Drilling mud





Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
463	0.87			WATER BASED	22.04.1976
1251	0.98			WATER BASED	22.04.1976
1283	1.00			WATER BASED	22.04.1976
1832	1.29			WATER BASED	22.04.1976
3276	1.37			WATER BASED	22.04.1976
4028	1.36			WATER BASED	22.04.1976
4144	1.46			WATER BASED	22.04.1976
4228	1.45			WATER BASED	22.04.1976
4609	1.45			WATER BASED	22.04.1976