General information

Wellbore name	2/9-3
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	2/9-3
Seismic location	ANO-8180-230 & SP 295
Production licence	032
Drilling operator	Amoco Norway Oil Company
Drill permit	618-L
Drilling facility	DYVI STENA
Drilling days	93
Entered date	13.09.1989
Completed date	14.12.1989
Release date	14.12.1991
Publication date	26.10.2009
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL SHOWS
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	67.1
Total depth (MD) [m RKB]	4859.0
Final vertical depth (TVD) [m RKB]	4855.0
Maximum inclination [°]	9.2
Bottom hole temperature [°C]	148
Oldest penetrated age	EARLY PERMIAN
Oldest penetrated formation	ROTLIEGEND GP
Geodetic datum	ED50
NS degrees	56° 26' 3.38'' N
EW degrees	3° 47' 49.91'' E
NS UTM [m]	6254838.58
EW UTM [m]	549162.29
UTM zone	31
NPDID wellbore	1443

Wellbore history

General

Well 2/9-3 was drilled on the Piggvar Terrace, between the Central Graben to the west and the Mandal High and the Søgne Basin to the east. The primary objective was to test for hydrocarbons, reservoir quality, and source rock potential and maturation in Late and Middle Jurassic formations. Secondary objectives were to determine the Permian stratigraphy in this portion of the Piggvar Terrace, and the reservoir quality and possible hydrocarbon accumulation in Early Permian Rotliegendes sands.

Operations and results

Wildcat well 2/9-3 was spudded with the semi-submersible installation Dyvi Stena on13 September 1989. After drilling to 378 m the hole packed off, and the well had to be re-spudded. The re-spud took place 20 m from the original location on 15 September 1989 and the well was drilled to TD at 4859 m in the Early Permian Rotliegend Group. BHA component failures in the 12.25" and 8.5" hole sections accounted for 9.4 days of lost time, but generally drilling and operations went without significant problems, and the well was drilled within the scheduled time. Possible shallow gas had been warned pre-drill at 160, 425 and 535 m, but no shallow gas was encountered. The well was drilled with seawater and hi-vis pills down to 850 m, with KCl/PHPA/PAC mud from 850 m to 3875 m, and with HRM/polymer mud from 3875 m to TD.

The lowermost part of the chalk was of Santonian age. The Coniacian, Turonian and Cenomanian were apparently absent as they where in well 2/9-2. A 12 m thick Early Cretaceous section was penetrated, dating Valanginian to Early Barremian. No evidence of Albian, Aptian and Ryazanian was seen. Top Late Jurassic came in at 3846 m, close to prognosed depth. A seismic event at 4190 m, originally interpreted to mark the top of Middle Jurassic, occurs within the Late Jurassic shale. The Late Jurassic sequence proved to be a good source rock for oil, with maturity in the upper part of the oil window. The well penetrated 57 m of Bryne Formation at 4543 m, and the Triassic section came in at 4600 m, 175 m deep to prognosis. The well drilled from Triassic "Red Beds" directly into the Lower Permian, without any Zechstein salt being penetrated. The Permian section consisted of a brick red and medium grey claystone at the top grading into varicoloured sandstone from 4730 m downwards. This sandstone was fine grained, hard, well cemented with volcanic fragments scattered throughout. The Permian Volcanic Basement was penetrated at 4852 m, and the final TD reached 7 m deeper at 4859 m.

Occasional weak shows were seen on claystones and limestone of the Tyne Group from 3874 m down to 4155 m. Shows were recorded on sandstones throughout the interval 4542 m to 4677 m in the Bryne Formation and into the Triassic.

Two cores were cut at 4524.6 m to 4552.2 m in the lower part of the Late Jurassic section. Core 1 (10.8 m) consisted of very fine, well cemented and tight sandstone with poor reservoir quality. Core 2 (16.6 m) consisted of claystone/shale with minor siltstone at the top. No fluid samples were taken in the well.

The well was permanently abandoned on 14 December 1989 as a dry hole with minor oil shows.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
850.00	4857.00

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	4524.6	4535.4	[m]
2	4535.6	4552.2	[m]

Total core sample length [m]	27.4
Cores available for sampling?	YES

Core photos


4524-4529m


4529-4534m


4534-4538m


4538-4543m


4543-4548m


4548-4552m

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
92	NORDLAND GP
1623	HORDALAND GP
3023	ROGALAND GP

3023	BALDER FM
3053	SELE FM
3100	LISTA FM
3155	VÅLE FM
3168	SHETLAND GP
3168	EKOFISK FM
3253	TOR FM
3660	HOD FM
3834	CROMER KNOLL GP
3834	ÅSGARD FM
3846	TYNE GP
3846	FARSUND FM
4125	HAUGESUND FM
4525	VESTLAND GP
4525	ULA FM
4543	BRYNE FM
4600	SMITH BANK FM
4670	ROTLIEGEND GP

Geochemical information

Document name	Document format	Document size [MB]
1443_1	pdf	1.01

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

Document name	Document format	Document size [MB]
1443_01_WDSS_General_Information	pdf	0.26
1443_02_WDSS_completion_log	pdf	0.26

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

Document name	Document format	Document size [MB]
1443_2_9_3_COMPLETION_REPORT_AND_LOG	pdf	57.30

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL GR	500	2768
CBL VDL GR CCL	1660	2824
CST GR	3028	3870
CST GR	3874	4848
DIL BHC GR CAL	840	2758
DIL BHC GR CAL SP	2776	3873
DIL BHC GR MSFL CAL SP	3864	4847
LDL CNLGR	3864	4861
MWD - GR RES DIR	92	4859
RECT	4590	4598
RFT GR	4528	4597
RFT GR	4590	4599
RSCT	4526	4527
RSCT	4587	4587
RSCT	4777	4777
SHDT GR	2776	3875
SHDT GR	3864	4848
VELOCITY	500	4843

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	299.0	36	313.0	0.00	LOT
INTERM.	20	840.0	26	850.0	1.74	LOT
INTERM.	13 3/8	2780.0	17 1/2	2800.0	1.87	LOT
INTERM.	9 5/8	3865.0	12 1/4	3875.0	1.99	LOT
OPEN HOLE		4859.0	8 1/2	4859.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
127	1.03			WATER BASED	15.12.1989

172	1.20	10.0	21.5	WATER BASED	13.09.1989
214	1.03	9.0	30.6	WATER BASED	19.09.1989
308	1.03	9.0	24.4	WATER BASED	19.09.1989
313	1.03			WATER BASED	19.09.1989
313	1.03	10.0	23.0	WATER BASED	19.09.1989
405	1.03	15.0	20.1	WATER BASED	20.09.1989
763	1.03			WATER BASED	21.09.1989
850	1.03			WATER BASED	22.09.1989
850	1.03			WATER BASED	25.09.1989
850	1.03			WATER BASED	26.09.1989
850	1.20	40.0	9.6	WATER BASED	25.09.1989
1047	1.20	16.0	4.8	WATER BASED	27.09.1989
1373	1.28	13.0	4.8	WATER BASED	28.09.1989
1560	1.56	27.0	5.3	WATER BASED	29.09.1989
1895	1.56	22.0	3.8	WATER BASED	03.10.1989
2090	1.56	24.0	6.2	WATER BASED	03.10.1989
2500	1.56	29.0	10.0	WATER BASED	03.10.1989
2698	1.56	24.0	5.7	WATER BASED	03.10.1989
2800	1.57	26.0	7.2	WATER BASED	04.10.1989
2800	1.57	30.0	6.7	WATER BASED	05.10.1989
2800	1.57	29.0	4.3	WATER BASED	06.10.1989
2800	1.62	25.0	5.3	WATER BASED	10.10.1989
2800	1.62	25.0	4.8	WATER BASED	10.10.1989
2800	1.62	23.0	4.3	WATER BASED	10.10.1989
2800	1.62	21.0	4.3	WATER BASED	11.10.1989
2800	1.60	24.0	4.3	WATER BASED	10.10.1989
2803	1.62	24.0	6.7	WATER BASED	12.10.1989
3016	1.62	32.0	9.6	WATER BASED	13.10.1989
3117	1.62	28.0	6.2	WATER BASED	16.10.1989
3201	1.62	23.0	6.7	WATER BASED	16.10.1989
3305	1.62	21.0	6.7	WATER BASED	16.10.1989
3321	1.62	18.0	4.8	WATER BASED	17.10.1989
3435	1.62	22.0	5.7	WATER BASED	18.10.1989
3546	1.62	21.0	6.7	WATER BASED	19.10.1989
3632	1.62	25.0	5.3	WATER BASED	23.10.1989
3632	1.62	25.0	5.3	WATER BASED	23.10.1989
3696	1.62	23.0	6.7	WATER BASED	23.10.1989
3696	1.62	23.0	6.7	WATER BASED	23.10.1989
3778	1.62	24.0	5.7	WATER BASED	23.10.1989
3778	1.62	24.0	5.7	WATER BASED	23.10.1989

3782	1.62	21.0	5.3	WATER BASED	24.10.1989
3807	1.62	22.0	5.3	WATER BASED	25.10.1989
3807	1.62	21.0	5.7	WATER BASED	27.10.1989
3808	1.62	22.0	5.3	WATER BASED	27.10.1989
3831	1.62	24.0	5.7	WATER BASED	30.10.1989
3831	1.62	23.0	6.7	WATER BASED	30.10.1989
3839	1.62	24.0	5.3	WATER BASED	30.10.1989
3841	1.62	23.0	4.3	WATER BASED	02.11.1989
3843	1.62	22.0	5.3	WATER BASED	02.11.1989
3843	1.62	20.0	3.8	WATER BASED	02.11.1989
3859	1.03	1.0		WATER BASED	14.12.1989
3867	1.62	25.0	3.3	WATER BASED	03.11.1989
3875	1.63	21.0	3.3	WATER BASED	06.11.1989
3875	1.62	21.0	4.3	WATER BASED	07.11.1989
3875	1.62	21.0	3.3	WATER BASED	06.11.1989
3875	1.62	24.0	4.8	WATER BASED	08.11.1989
3875	1.62	23.0	5.3	WATER BASED	09.11.1989
3876	1.63	20.0	3.3	WATER BASED	06.11.1989
3877	1.80	19.0	3.8	WATER BASED	10.11.1989
3878	1.80	21.0	2.9	WATER BASED	13.11.1989
3901	1.80	25.0	7.2	WATER BASED	13.11.1989
3975	1.80	26.0	3.8	WATER BASED	13.11.1989
4040	1.80	28.0	3.8	WATER BASED	14.11.1989
4107	1.80	27.0	3.8	WATER BASED	15.11.1989
4169	1.80	27.0	3.8	WATER BASED	16.11.1989
4200	1.80	25.0	3.3	WATER BASED	17.11.1989
4218	1.80	25.0	3.3	WATER BASED	20.11.1989
4294	1.80	24.0	3.8	WATER BASED	20.11.1989
4353	1.80	23.0	3.8	WATER BASED	20.11.1989
4413	1.80	22.0	3.8	WATER BASED	21.11.1989
4488	1.80	20.0	3.3	WATER BASED	22.11.1989
4524	1.80	22.0	3.3	WATER BASED	23.11.1989
4524	1.80	20.0	3.3	WATER BASED	24.11.1989
4536	1.80	19.0	3.8	WATER BASED	28.11.1989
4564	1.80	17.0	3.3	WATER BASED	28.11.1989
4614	1.80	19.0	3.3	WATER BASED	28.11.1989
4682	1.82	20.0	4.8	WATER BASED	28.11.1989
4715	1.82	19.0	4.3	WATER BASED	29.11.1989
4715	1.82	18.0	3.3	WATER BASED	30.11.1989
4772	1.82	18.0	5.3	WATER BASED	01.12.1989

4858	1.82	19.0	5.3	WATER BASED	04.12.1989
4859	1.82	19.0	4.3	WATER BASED	04.12.1989
4859	1.82	17.0	3.3	WATER BASED	04.12.1989
4859	1.85	19.0	3.3	WATER BASED	05.12.1989
4859	1.85	19.0	3.8	WATER BASED	06.12.1989
4862	1.85	21.0	4.3	WATER BASED	07.12.1989
4862	1.85	22.0	4.8	WATER BASED	08.12.1989
4862	1.85	16.0	3.8	WATER BASED	11.12.1989
4862	1.85	18.0	3.8	WATER BASED	11.12.1989
4862	1.85	20.0	5.3	WATER BASED	11.12.1989
4862	1.85	210.0	5.7	WATER BASED	12.12.1989
4862	1.03			WATER BASED	13.12.1989

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]
1443_Formation_pressure_(Formasjonstrykk)	pdf	0.21