

**General information**

Wellbore name	34/7-23 S
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	VIGDIS
Discovery	34/7-23 S
Well name	34/7-23
Seismic location	GE-83:ROW 357 & COLUMN 1109
Production licence	089
Drilling operator	Saga Petroleum ASA
Drill permit	783-L
Drilling facility	VILDKAT EXPLORER
Drilling days	41
Entered date	22.02.1994
Completed date	03.04.1994
Release date	03.04.1996
Publication date	28.02.2008
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	INTRA DRAUPNE FM SS
Kelly bushing elevation [m]	25.0
Water depth [m]	246.0
Total depth (MD) [m RKB]	3375.0
Final vertical depth (TVD) [m RKB]	2889.0
Maximum inclination [°]	46.3
Bottom hole temperature [°C]	103
Oldest penetrated age	MIDDLE JURASSIC
Oldest penetrated formation	TARBERT FM
Geodetic datum	ED50
NS degrees	61° 20' 24.89" N
EW degrees	2° 4' 31.54" E
NS UTM [m]	6801198.83
EW UTM [m]	450528.18



UTM zone	31
NPDID wellbore	2296

Wellbore history

General

Well 34/7-23 S is located on the Vigdis Field on Tampen Spur in the Northern North Sea. Located 5200 meters north-northwest of the H-Sentral 34/7-21 oil discovery, the well was primarily designed to test for reservoir presence and hydrocarbons in the Top Draupne Sequence of Portlandian and Ryazanian age. In the case of a discovery, pressure communication with well 34/7-21 would be tested. Secondary objectives of the well included lowermost Early Cretaceous sandstones found oil bearing in 34/7-21, and intra Oxfordian sandstones which were found to yield oil in well 34/7-21 A. Both these sandstones are thin and below seismic resolution. An additional objective was to test the presence of sandstone in Paleocene.

Operations and results

Well 34/7-23 S was spudded with the semi-submersible installation Vildkat Explorer on 22 February 1994 and drilled to TD at 3375 m (2889 m TVD) in the Middle Jurassic Tarbert Formation. The subsea Jurassic target location coincided with the pipeline which connects the Snorre TLP to the Statfjord C platform. To avoid any mechanical problems with the rigs anchors, the spud location was chosen to be located 1400 meters east of the Base Cretaceous target location and the borehole was designed as a westward deviated well. Special H₂S equipment was mobilized when H₂S was observed during coring in the upper part of the reservoir. For operational reasons it was decided to interrupt coring and take a FMT sample. An additional 10 meters were drilled from 3096 down to 3106 m to get a rathole for the FMT logging tool. This interval was thus not cored. The well was drilled with spud mud down to 1175 m, and with KCl mud with a polyalkyleneglycol additive (BP DCP 208) m from 1175 m to TD.

In the Nordland, Hordaland and Rogaland Groups, the well penetrated mainly clay/claystone with some beds of sand, except for the sandy Utsira Formation between 955 - 1144 m (934 - 1114 m TVD). In the Shetland Group clay stones with limestone beds were penetrated. The condensed Cromer Knoll Group consisted of marls, limestones and minor claystones.

The Draupne Formation was penetrated at 3078 m (2608.5 m TVD). The upper part was a 24 m thick oil-filled Intra-Draupne Formation Sand. No oil water contact was encountered in the well: the deepest oil down to was observed at 3102 m (2632 m TVD). The Intra-Draupne Formation Sandstone had a measured thickness of 25 (23.5 m TVD). It had an estimated average log porosity of 25.1% and an estimated average water saturation of 19.0%. The net gross ratio is 0.91. The underlying Draupne Formation shale was 80 m thick.

The Intra-Draupne Formation Sandstone had a pressure gradient of 1.28 g/cc (ref. MSL). The formation pressure in the impermeable rocks of the Viking Group is believed to be in the order of 1.45 - 1.43 g/cc (ref. MSL), whilst the pressure in the Brent Group was measured to be 1.43 - 1.42 g/cc (ref. MSL). The well was interpreted to be differently depleted than the H-Sentral 34/7-21 well.

Apart from the oil filled Intra-Draupne Formation sand weak shows were observed in several sections throughout the well. In the Hordaland Group sand beds with traces of shows were observed in cutting samples in the interval 1332 - 1560 m as well as in the Rogaland Formation from 2000 to 2187 m. In the Shetland Group, hydrocarbon shows



occurred in thin sandstone horizons from 2735 to 2835 m and sporadically down to 3010 m. Below the reservoir in the Viking Group, traces of weak shows were observed in thin sandstone laminae, claystones, and siltstones. Also the uppermost, massive sandstones of the Brent Group had weak shows.

A total of five cores were cut in the interval 3079-3096 and 3106-3136 m in the Intra Draupne Formation sand and 34 m into the underlying Draupne shale. The total core recovery was 99.6% (46.8m). FMT samples were taken in the Intra-Draupne Formation sand at 3080 m (oil and gas), 3082 m (oil and gas), and 3084.2 m (water and filtrate). All three samples contained H₂S in the range 60 - 75 ppm. The well was plugged back to a depth of 2480 m and permanently abandoned on 3 April as an oil discovery. The well was later sidetracked (34/7-23 A).

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
380.00	3374.00

Cuttings available for sampling?	YES
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Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	3079.0	3095.9	[m]
2	3106.0	3108.0	[m]
3	3108.0	3117.0	[m]
4	3117.0	3124.0	[m]
5	3124.0	3136.0	[m]

Total core sample length [m]	46.8
Cores available for sampling?	YES

Core photos

3097-3084m



3084-3089m



3089-3094m



3094-3095m



3106-3108m



3108-3113m



3113-3116m



3117-3122m



3122-3124m



3124-3129m



3129-3134m



3134-3136m

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
271	NORDLAND GP
1058	UTSIRA FM
1074	UNDIFFERENTIATED
1144	HORDALAND GP
1369	NO FORMAL NAME
1400	NO FORMAL NAME
1460	NO FORMAL NAME
1602	NO FORMAL NAME
1995	ROGALAND GP
1995	BALDER FM
2042	LISTA FM
2283	SHETLAND GP
2283	JORSALFARE FM
2596	KYRRE FM
3071	CROMER KNOLL GP
3078	VIKING GP
3078	INTRA DRAUPNE FM SS
3102	DRAUPNE FM
3182	HEATHER FM
3328	BRENT GP
3328	TARBERT FM



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

Document name	Document format	Document size [MB]
2296_34_7_23_S_COMPLETION_REPORT_AND_LOG	pdf	6.76

Logs

Log type	Log top depth [m]	Log bottom depth [m]
DLL MLL GR	3050	3205
DPIL MAC ZDL CN DSL	2318	3373
FMT GR	3077	3088
FMT GR	3078	3353
FMT GR	3078	3084
HDIP CBIL GR	2318	3334
MAC-VDL	2039	2318
MWD EWR - GR RES DIR	271	3375
SWC PFC	2370	3334
SWC PFC	2375	3333
TBRT GR	3050	3137
VELOCITY	780	3360

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	368.0	36	370.0	0.00	LOT
SURF.COND.	13 3/8	1167.0	17 1/2	1170.0	1.57	LOT
INTERM.	9 5/8	2320.0	12 1/4	2323.0	1.80	LOT
OPEN HOLE		3374.0	8 1/2	3374.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
348	1.06			WATER BASED	23.02.1994





369	1.06			WATER BASED	24.02.1994
369	1.06			WATER BASED	25.02.1994
515	1.17	11.0	16.0	WATER BASED	28.02.1994
987	1.18	10.0	60.0	WATER BASED	28.02.1994
1175	1.20	7.0	39.0	WATER BASED	28.02.1994
1175	1.20	8.0	36.0	WATER BASED	01.03.1994
1175	1.20	8.0	36.0	WATER BASED	02.03.1994
1175	1.20	8.0	36.0	GEL MUD	03.03.1994
1175	1.20	8.0	36.0	GEL MUD	08.03.1994
1175	1.20	8.0	36.0	GEL MUD	08.03.1994
1408	1.35	18.0	20.0	DUMMY	08.03.1994
1860	1.43	24.0	25.0	DUMMY	08.03.1994
2187	1.48	23.0	24.0	DUMMY	10.03.1994
2332	1.51	31.0	27.0	DUMMY	11.03.1994
2332	1.51	30.0	28.0	DUMMY	14.03.1994
2332	1.51	30.0	28.0	DUMMY	14.03.1994
2332	1.51	30.0	28.0	DUMMY	14.03.1994
2332	1.51	30.0	28.0	DUMMY	15.03.1994
2332	1.53	30.0	28.0	DUMMY	16.03.1994
2332	1.51	30.0	29.0	DUMMY	10.03.1994
2462	1.57	32.0	24.0	DUMMY	17.03.1994
2612	1.59	37.0	34.0	DUMMY	18.03.1994
2952	1.60	43.0	38.0	DUMMY	22.03.1994
2952	1.60	31.0	29.0	DUMMY	23.03.1994
3096	1.60	34.0	26.0	DUMMY	24.03.1994
3108	1.60	29.0	25.0	DUMMY	25.03.1994
3189	1.60	31.0	24.0	DUMMY	28.03.1994
3265	1.60	29.0	26.0	DUMMY	29.03.1994
3375	1.60	27.0	26.0	DUMMY	30.03.1994
3375	1.60	33.0	19.0	DUMMY	05.04.1994
3375	1.60	33.0	19.0	DUMMY	05.04.1994
3375	1.60	22.0	21.0	DUMMY	05.04.1994
3375	1.60	22.0	21.0	DUMMY	05.04.1994

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]
2296 Formation pressure (Formasjonstrykk)	pdf	0.23

