

**General information**

Wellbore name	16/1-27
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Field	EDVARD GRIEG
Discovery	16/1-8 Edvard Grieg
Well name	16/1-27
Seismic location	LN16201. Inline 1853 crossline 1379
Production licence	338
Drilling operator	Lundin Norway AS
Drill permit	1652-L
Drilling facility	ISLAND INNOVATOR
Drilling days	42
Entered date	01.03.2017
Completed date	11.04.2017
Plugged and abandon date	11.04.2017
Release date	11.04.2019
Publication date	11.04.2019
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	CRETACEOUS
1st level with HC, formation	ÅSGARD FM
2nd level with HC, age	TRIASSIC
2nd level with HC, formation	SKAGERRAK FM
Kelly bushing elevation [m]	30.0
Water depth [m]	108.0
Total depth (MD) [m RKB]	2258.0
Final vertical depth (TVD) [m RKB]	2258.0
Maximum inclination [°]	1.3
Bottom hole temperature [°C]	95
Oldest penetrated formation	BASEMENT
Geodetic datum	ED50
NS degrees	58° 50' 18.11" N



EW degrees	2° 11' 56.79" E
NS UTM [m]	6522480.48
EW UTM [m]	453769.86
UTM zone	31
NPDID wellbore	8124

Wellbore history

**General**

Well 16/1-27 was drilled on the Edvard Greg Field on the Utsira High in the North Sea. It was drilled as an appraisal well to verify top reservoir and sand content in the western part of the field.

Operations and results

Appraisal well 16/1-27 was spudded with the semi-submersible installation Island Innovator on 1 March 2017 and drilled to TD at 2258 m in Basement rock. Operations proceeded without significant problems. The well was drilled with seawater and hi-vis pills down to 611 m and with Aquadril mud with 4% glycol from 611 m to TD.

Top reservoir, Åsgard Formation sandstone, was encountered at 1962 m, directly overlying Triassic Skagerrak Formation sandstone at 1968.35 m. The reservoir contained oil from top down to the OWC at 1978 m (1948 m TVD MSL), 9 meters deeper than the established FWL at 1939 m TVD MSL in the central Edvard Grieg area. Pressure data showed one oil gradient through the Cretaceous to Triassic sandstones, and two water gradients below the oil: one in communication with the oil gradient and one with 6 bar higher pressure in the lower conglomerates of the Skagerrak Formation, below a shaly layer around 2150 m.

Apart from shows in the reservoir section significant oil shows were recorded above reservoir level. First oil show in the well was described in thin Oligocene sandstones at 1309 to 1322.5 m as fair patchy straw yellow direct fluorescence, fast blooming to streaming bluish white cut fluorescence, medium straw to bluish white fluorescent residue, no visible residue.

At 1506 to 1543 m, in thin Eocene Hordaland Group sandstones, there were oil shows described as no to weak hydrocarbon odour, no to medium brown oil stain, patchy to even weak to dull straw yellow to orange direct fluorescence, slow blooming to streaming bluish white cut fluorescence, weak bluish white fluorescent residue, no visible residue.

At 1811 to 1858 m, in Early Eocene Balder Formation and base Hordaland group Tuff and limestone, there were oil shows described as medium brown to dark brown oil stain, weak spotty to patchy bluish white to light yellowish brown direct fluorescence, slowly bleeding to blooming light yellowish brown cut fluorescence, no fluorescent or visible residue. Below the OWC only poor shows were recorded down to 2023 m.

Three cores were cut. Core 1 was cut from 1967 to 1993.1 m with 95.8% recovery. The core-log shift is +0.7 m. Core 2 was cut from 1993.1 to 2002.2 m with 78.8% recovery. The core-log shift is +0.5 m, Core 3 was cut from 2002.2 to 2023 m with 98.7% recovery. The core-log shift is -0.25 m. MDT fluid samples were taken at 1972.3 m (oil), 1976 m (oil), and 2025 m (water). The two oil sampling stations gave similar oils according to PVT analysis, with GOR ranging from 120.3 to 123.2 Sm³/Sm³ and stock tank oil density ranging from 0.8545 to 0.8565 g/cm³.

The well was permanently abandoned on 11 April 2017 as an oil appraisal

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
620.00	2257.00



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	1967.0	1992.1	[m]
2	1993.1	2000.1	[m]
3	2002.0	2022.7	[m]

Total core sample length [m]	52.8
Cores available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
139	NORDLAND GP
766	UTSIRA FM
970	HORDALAND GP
980	SKADE FM
1562	GRID FM
1836	ROGALAND GP
1836	BALDER FM
1858	SELE FM
1865	LISTA FM
1942	VÅLE FM
1947	SHETLAND GP
1947	EKOFISK FM
1955	TOR FM
1961	HOD FM
1962	CROMER KNOLL GP
1962	ÅSGARD FM
1968	SKAGERRAK FM
2240	BASEMENT

Logs



Log type	Log top depth [m]	Log bottom depth [m]
FMI MSIP	612	1922
FMI MSIP	1875	2260
HNGS XPT PEX HRLA	612	1928
MDT	1963	2239
MSCT	1952	2114
MSCT	2098	2249
MWD - DIR PWD GR RES ECD	183	619
MWD - GR PWD RES DIR DEN NEU MAG	1912	2258
MWD - GR RES PWD DIR	608	1967
USIT	1300	1940

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	204.0	36	204.0	0.00	
SURF.COND.	20	611.6	26	618.0	0.00	
PILOT HOLE		620.0	9 7/8	620.0	0.00	
		623.0		0.0	1.55	FIT
INTERM.	9 5/8	1941.1	12 1/4	1948.0	1.71	LOT
OPEN HOLE		2258.0	8 1/2	2258.0	0.00	

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
215	1.04			SPUD-MUD	
514	1.03	1.0		Sea water	
618	1.30	10.0		AQUA-DRILL WBM	
618	1.04			SPUD-MUD	
859	1.30	12.0		AQUA-DRILL WBM	
1345	1.35	17.0		AQUA-DRILL WBM	
1664	1.35	18.0		AQUA-DRILL WBM	
1951	1.14	14.0		AQUA-DRILL WBM	
2258	1.14	16.0		AQUA-DRILL WBM	