



General information

Wellbore name	7324/7-3 S
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	BARENTS SEA
Discovery	7324/8-1 (Wisting)
Well name	7324/7-3
Seismic location	Inline 4098 / Crossline 5720. 2D: inline 02088 Crossline 040
Production licence	537
Drilling operator	OMV (Norge) AS
Drill permit	1609-L
Drilling facility	TRANSOCEAN SPITSBERGEN
Drilling days	91
Entered date	15.01.2016
Completed date	14.04.2016
Release date	14.04.2018
Publication date	14.04.2018
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	STØ FM
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	FRUHOLMEN FM
Kelly bushing elevation [m]	40.0
Water depth [m]	402.0
Total depth (MD) [m RKB]	2354.0
Final vertical depth (TVD) [m RKB]	713.0
Maximum inclination [°]	93
Bottom hole temperature [°C]	19
Oldest penetrated age	MIDDLE JURASSIC
Oldest penetrated formation	STØ FM
Geodetic datum	ED50
NS degrees	73° 26' 30.83" N



EW degrees	24° 15' 40.08" E
NS UTM [m]	8151997.24
EW UTM [m]	412900.00
UTM zone	35
NPDID wellbore	7875

Wellbore history



Wellbore history

General

Well 7324/7-3 S was drilled to appraise the 7324/8-1 Wisting discovery. The objective was to drill horizontally through the Central South and Central West segments in order to test the Stø and Fruholmen reservoirs by performing a DST. The well is the first horizontal well of this shallow depth drilled in the Barents Sea and has a well path from vertical to horizontal during 270m of argillaceous overburden.

Operations and results

Appraisal well 7324/7-3 S was spudded with the semi-submersible installation Transocean Spitsbergen on 15 January 2016 and drilled to TD at 2354 m (713 m TVD) in the Middle Jurassic Stø Formation. The well was drilled vertical down to ca 490 m and horizontal (90° deviated towards northeast) from ca 932 m (716 m TVD). Severe mud losses were experienced during drilling of the horizontal section, mainly related to faults and fracture zones, all cured with LCM material. Otherwise, no significant problem was encountered in the operations. The well was drilled with Bentonite sweeps/KCl mud down to 509 m, with EMS 4600 oil based mud from 509 m to 1238 m, and with seawater/Duotec NS mud from 1238 m to TD.

The reservoirs of Mid-Jurassic to Late Triassic Stø/Nordmela/Fruholmen formations were oil filled, both in the Central South and Central West segment. The well penetrated the sandy Stø/Nordmela Formation in the Central South segment, before entering the Fruholmen Formation in an uplifted horst block, and finally re-entering the Stø Formation in the Central West segment. All formations penetrated in the horizontal section were oil filled, including the Fruholmen Formation in the horst block. No oil-water contact or free water level was penetrated as the well was planned to stay in the oil-bearing parts of the Realgrunnen Formation. From the Geosphere tool that was used for geosteering in the 8 1/2" section a Free Water Level between 697 and 700 m TVD MSL.

No cores were cut. An MDT oil sample was taken at 803 m.

The well was permanently abandoned on 14 April 2016 as an oil appraisal well.

Testing

A drill stem test from the horizontally drilled Stø Formation was performed. The main flow produced 487 Sm³ oil and 35055 Sm³ of associated gas /day through a 64/64" choke. The corresponding gas/oil ratio is 72 Sm³/Sm³. The oil density was 0.839 g/cm³ and the gas gravity was 0.72 (air = 1). Maximum production rates were 762 Sm³ of oil and 48310 Sm³ of associated gas /day through a 104/64-inch nozzle opening. The formation temperature measured at 1736.85 m (718.21m TVD) was 17.8 °C.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
516.00	2352.00

Cuttings available for sampling?	YES
----------------------------------	-----

**Oil samples at the Norwegian Offshore Directorate**

Test type	Bottle number	Top depth MD [m]	Bottom depth MD [m]	Fluid type	Test time	Samples available
DST		803.00	0.00	OIL		YES
DST		2232.49	1771.03	OIL		YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
442	NORDLAND GP
510	ADVENTDALEN GP
510	KOLMULE FM
590	KOLJE FM
607	KNURR FM
625	KLIPPFISK FM
635	HEKKINGEN FM
691	FUGLEN FM
789	KAPP TOSCANA GP
789	STØ FM
867	NORDMELA FM
1144	FRUHOLMEN FM
1373	STØ FM

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	0	0	25.4

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



Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	487	35055	0.839	0.720	72

Logs

Log type	Log top depth [m]	Log bottom depth [m]
GPIT PPC APS MDT DWCH	659	920
GPIT PPC MSIP GR	442	620
HDVS VSP	442	595
LWD - GEO ECO SON STETH	948	1220
LWD - GEOS ECOS SONS	1216	1750
LWD - PERS MICS GEOVIS SONS	1746	2346
LWD - SON SC VIS ARC8 ADN8	660	942
LWD - VIS ARC8 ADN8	507	644
LWD MWD - TELE GR	440	488

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	452.0	36	452.0	0.00	
SURF.COND.	20	506.8	26	509.5	0.00	
		514.5		0.0	1.15	FIT
INTERM.	13 3/8	659.5	17 1/2	665.0	1.70	FIT
PILOT HOLE		672.0	12 1/4	672.0	0.00	
		803.0		0.0	1.76	LOT
INTERM.	9 5/8	947.5	12 1/4	952.0	1.35	FIT
PROD.	7	1746.0	8 1/2	1750.0	0.00	
		1753.0		0.0	1.35	FIT
LINER	5	2351.0	6	2354.0	0.00	

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
458	1.09	25.0		EMS 4600 @ 5°C	
458	1.09	14.0		EMS 4600 @ 50°C	



939	1.14	15.0		EMS 4600 @ 50°C	
1110	1.09	15.0		EMS 4600 @ 50°C	
1364	1.09	9.0		Sea water polymer WBM	
2184	1.09	8.0		WBM Polymer New	
2184	1.09	8.0		Sea water polymer WBM	
2300	1.10	9.0		WBM Polymer New	
2354	1.16	25.0		Versapro LSOBM	
2354	1.10	11.0		EMS-4600	
2354	1.18	17.0		EMS-4600	
2354	1.19	23.0		Versapro LSOBM	
2354	1.10	7.0		WBM Polymer New	
2354	1.09	8.0		Sea water polymer WBM	