## General information

| | |
|---|---|
| Wellbore name | 7225/3-2 |
| 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 | 7225/3-1 (Norvarg) |
| Well name | 7225/3-2 |
| Seismic location | inline 1627 & crossline 2183 |
| Production licence | 535 |
| Drilling operator | Total E&P Norge AS |
| Drill permit | 1444-L |
| Drilling facility | LEIV EIRIKSSON |
| Drilling days | 100 |
| Entered date | 29.04.2013 |
| Completed date | 07.08.2013 |
| Release date | 07.08.2015 |
| Publication date | 07.08.2015 |
| Purpose - planned | APPRAISAL |
| Reentry | NO |
| Content | GAS |
| Discovery wellbore | NO |
| 1st level with HC, age | TRIASSIC |
| 1st level with HC, formation | KOBBE FM |
| Kelly bushing elevation [m] | 25.0 |
| Water depth [m] | 381.0 |
| Total depth (MD) [m RKB] | 2210.0 |
| Final vertical depth (TVD) [m RKB] | 2209.0 |
| Maximum inclination [°] | 3.3 |
| Bottom hole temperature [°C] | 65 |
| Oldest penetrated age | TRIASSIC |
| Oldest penetrated formation | KLAPPMYSS FM |
| Geodetic datum | ED50 |
| NS degrees | 72° 57' 5.17'' N |
| EW degrees | 25° 58' 23.34'' E |
| NS UTM [m] | 8095573.09 |
| EW UTM [m] | 466396.98 |

| | |
|---|---|
| UTM zone | 35 |
| NPDID wellbore | 7149 |

## Wellbore history

### General

Well 7225/3-2 was drilled on the Norvarg Dome on the Bjarmeland Platform in the Barents Sea. The objective of the well was to appraise the 7225/3-1 Norvarg gas discovery. Primary target was channel sandstones in the Kobbe Formation. Triassic sandstones within the Carnian section and the Upper Snadd Formation as well as Jurassic sandstones in the Stø Formation were secondary targets.

### Operations and results

Appraisal well 7225/3-2 was spudded with the semi-submersible installation Leiv Eiriksson on 29 April 2013 and drilled to TD at 2210 m in the Early Triassic Klappmyss Formation. During drilling operations of the 26” hole section at 500 m the drill string parted. The fish was successfully retrieved. After this, the hole packed off at 525 m and 535 m in the 26” section. Most of the NPT in the well were related to these events. Further operation proceeded without significant problems. The well was drilled with seawater and hi-vis pills down to 554 m, with Glydril water based mud from 554 m to 1073 m, and with a water based mud from 1073 m to TD.

Three main gas-filled reservoir layers were encountered in the Kobbe Formation. Channel A with top at 1590 m had a thickness of 18.7 m, a NTG of 76% and an average porosity and water saturation of 17% and 40% respectively. Channel D with top at 1775 m had a thickness of 33.1 m, a NTG of 51% and an average porosity and water saturation of 13% and 44% respectively. A third sandstone, “Anomaly 2”, with top at 1909.6 m had a thickness of 18.3 m, a NTG of 89% and an average porosity and water saturation of 13% and 48% respectively. All three had gas-down-to contacts. The secondary targets were water-wet. Shows (fluorescence and cut) were described on sandstones in the Kobbe Formation between 1550 m and 1950 m.

Four 54 m core barrels were cut in the Kobbe Formation, with very low ROP, from 1553 to 1610 m (two cores) and from 1727 to 1757 m (two cores). While the recovery of last two cores was 100%, the first two gave respectively 86.1 and 76.4% recovery. MDT fluid samples were taken at 1600.7 m (dry gas), 1778. 31 m (filtrate + gas), 1788.59 m (filtrate), 1913.01 m (filtrate + gas + oil?), and 1923.64 m (filtrate + gas + oil?).

The well was permanently abandoned on 7 August 2013 as a gas appraisal.

### Testing

Two Drill Stem Tests were performed in two channel sandstones in the Kobbe Formation

DST 1 tested 207.33 m of perforations from 1725.05 to 1932.38 m. It produced 28500 Sm3 gas/day through a 40/64” choke. The maximum temperature in the test, measured during the clean-up flow was 54.9 °C.

DST 2 tested 23 m of perforation from 1587.5 to 1610.5 m. It produced 167400 Sm3 gas/day through a 36/64” choke. The maximum temperature in the test, measured at end of build-up after the clean-up flow was 48.6 °C.

## Cuttings at the Norwegian Offshore Directorate

| Cutting sample, top depth [m] | Cutting samples, bottom depth [m] |
|---|---|
| 554.00 | 2205.00 |

| 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 | 1553.0 | 1561.6 | [m ] |
| 2 | 1563.0 | 1598.2 | [m ] |
| 3 | 1727.0 | 1734.5 | [m ] |
| 4 | 1734.5 | 1757.0 | [m ] |

| Total core sample length [m] | 73.8 |
|---|---|
| Cores available for sampling? | YES |

## Lithostratigraphy

| Top depth [mMD RKB] | Lithostrat. unit |
|---|---|
| 406 | NORDLAND GP |
| 406 | NO FORMAL NAME |
| 478 | ADVENTDALEN GP |
| 478 | KOLMULE FM |
| 639 | KNURR FM |
| 674 | HEKKINGEN FM |
| 702 | FUGLEN FM |
| 729 | KAPP TOSCANA GP |
| 729 | STØ FM |
| 790 | FRUHOLMEN FM |
| 807 | SNADD FM |
| 1168 | UNDIFFERENTIATED |
| 1517 | SASSENDALEN GP |
| 1517 | KOBBE FM |
| 2141 | KLAPPMYSS FM |

## Drill stem tests (DST)

| Test number | From depth MD [m] | To depth MD [m] | Choke size [mm] |
|---|---|---|---|
| 1.0 | 1725 | 1932 | 12.5 |
| 2.0 | 1587 | 1610 | 20.6 |

| Test number | Final shut-in pressure [MPa] | Final flow pressure [MPa] | Bottom hole pressure [MPa] | Downhole temperature [°C] |
|---|---|---|---|---|
| 1.0 | | | | |
| 2.0 | | | | |

| Test number | Oil [Sm3/day] | Gas [Sm3/day] | Oil density [g/cm3] | Gas grav. rel.air | GOR [m3/m3] |
|---|---|---|---|---|---|
| 1.0 | | 23400 | | | |
| 2.0 | | 176200 | | | |

## Logs

| Log type | Log top depth [m] | Log bottom depth [m] |
|---|---|---|
| DP GR | 1913 | 1923 |
| GR MDT | 732 | 1020 |
| GR PPC | 554 | 687 |
| GR PPC MSIP CBL FMI ECS CAL | 627 | 2200 |
| HNGR APS TLD HRLA MCFL SP CMR CA | 1072 | 2211 |
| HNGS GR CAL HRLA MCFL SP MSIP AP | 681 | 1073 |
| LWD - RAB RES ECD GR DI FPWD | 1073 | 2210 |
| LWD - RAB RES GR PWD DI | 687 | 1073 |
| LWD - RES GR PWD DI SEIS | 474 | 687 |
| MDT 3D GR | 1096 | 1290 |
| MDT 3D GR | 1554 | 1781 |
| MSCT GR 40XL SWC | 1552 | 1974 |
| VSP GR | 386 | 2140 |

## 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 | 474.0 | 36 | 474.0 | 0.00 | |
| SURF.COND. | 20 | 547.0 | 26 | 554.0 | 0.00 | |
| INTERM. | 13 3/8 | 681.0 | 17 1/2 | 687.0 | 1.18 | |
| INTERM. | 9 5/8 | 1072.0 | 12 1/4 | 1073.0 | 1.75 | |
| LINER | 7 | 2208.0 | 8 1/2 | 2210.0 | 2.30 | |

## Drilling mud

| Depth MD [m] | Mud weight [g/cm3] | Visc. [mPa.s] | Yield point [Pa] | Mud type | Date measured |
|---|---|---|---|---|---|
| 470 | 1.37 | 9.0 | | KCl/Polymer-Glycol | |
| 475 | 1.35 | | | Spud mud | |
| 554 | 1.35 | | | Spud mud | |
| 640 | 1.37 | 8.0 | | KCl/Polymer-Glycol | |
| 687 | 1.12 | 7.0 | | KCl/Polymer-Glycol | |
| 1073 | 1.36 | 12.0 | | KCl/Polymer-Glycol | |
| 1223 | 1.37 | 10.0 | | KCl/Polymer-Glycol | |
| 1554 | 1.36 | 12.0 | | KCl/Polymer-Glycol | |
| 1757 | 1.36 | 12.0 | | KCl/Polymer-Glycol | |
| 2210 | 1.35 | | | Calcium Chloride | |

## 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] |
|---|---|---|
| 7149_Formation_pressure_(Formasjonstrykk) | PDF | 0.26 |