



## **General information**





|                                    |                                       |
|------------------------------------|---------------------------------------|
| Wellbore name                      | 16/7-10                               |
| Type                               | EXPLORATION                           |
| Purpose                            | WILDCAT                               |
| Status                             | P&A                                   |
| Press release                      | <a href="#">link to press release</a> |
| Factmaps in new window             | <a href="#">link to map</a>           |
| Main area                          | NORTH SEA                             |
| Discovery                          | <a href="#">16/7-10</a>               |
| Well name                          | 16/7-10                               |
| Seismic location                   | inline 4200/xline 4214                |
| Production licence                 | <a href="#">569</a>                   |
| Drilling operator                  | Statoil Petroleum AS                  |
| Drill permit                       | 1359-L                                |
| Drilling facility                  | <a href="#">OCEAN VANGUARD</a>        |
| Drilling days                      | 67                                    |
| Entered date                       | 09.07.2011                            |
| Completed date                     | 13.09.2011                            |
| Release date                       | 13.09.2013                            |
| Publication date                   | 13.09.2013                            |
| Purpose - planned                  | WILDCAT                               |
| Reentry                            | NO                                    |
| Content                            | GAS/CONDENSATE                        |
| Discovery wellbore                 | YES                                   |
| 1st level with HC, age             | EARLY PALEOCENE                       |
| 1st level with HC, formation       | TY FM                                 |
| Kelly bushing elevation [m]        | 22.0                                  |
| Water depth [m]                    | 85.0                                  |
| Total depth (MD) [m RKB]           | 2514.0                                |
| Final vertical depth (TVD) [m RKB] | 2513.0                                |
| Maximum inclination [°]            | 6.4                                   |
| Oldest penetrated age              | LATE CRETACEOUS                       |
| Oldest penetrated formation        | TOR FM                                |
| Geodetic datum                     | ED50                                  |
| NS degrees                         | 58° 29' 56.56" N                      |
| EW degrees                         | 2° 1' 31.42" E                        |
| NS UTM [m]                         | 6484832.90                            |
| EW UTM [m]                         | 443193.93                             |
| UTM zone                           | 31                                    |
| NPDID wellbore                     | 6607                                  |



## Wellbore history

### General

Well 16/7-10 was drilled on the Theta Prospect in the South Viking Graben in the North Sea, close to the Sleipner field. The prospect was seen as a possible extension of the 16/7-2 discovery in the Ty Formation. The main target was Ty Formation turbidite sands.

### Operations and results

The semi-submersible installation Ocean Vanguard drilled this well. A 8 1/2" pilot hole 16/7-U-1 was drilled to 610.5 m prior to the main well due to shallow gas warning. At this depth a substantial amount of shallow gas was detected with the ROV sonar. The pilot hole was plugged back. Wildcat well 16/7-10 was spudded on 9 July 2011, 16 m away from the pilot hole. After intermediate wire line logging in the 12 1/4" section, it was not possible to get the 9 5/8" liner to section TD. A technical side-track (16/7-10 T2) was performed from the 16/7-10 well, with a kick-off point at 1916 m, and drilled to final TD at 2514 m in the Late Cretaceous Tor Formation. The well was drilled with sea water and sweeps down to 503 m, with Performadril mud from 503 m to 1151 m, and with XP-07 #14 oil based mud from 1151 m to TD.

Rocks of Quaternary, Tertiary and Cretaceous age were penetrated. The Ty Formation was encountered with Good reservoir sand at 2348.5 m (2347.5 m TVD), 35.5 m deeper than prognosed. Results of the Theta NE well showed a considerably reduced hydrocarbon column relative to prognosis (2 m gross HC bearing interval vs. 36 m expected). The GWC was found to be at 2349 m (2328 m TVD MSL), the same as encountered at 16/7-2, supporting pressure communication between the two wells. Reservoir parameters were also similar, with Ty Formation 115 m gross reservoir interval, 88 % Net to Gross and 27 % porosity. Hydrocarbon saturation was estimated to 51 %. No oil shows were reported from the well. The use of oil based mud obscured visible shows analysis below 1151 m

No conventional cores were cut in the well. MDT wire line fluid samples were taken in the Ty Formation at 2348.6 m (2347.6 m TVD; gas/condensate with ca 3% hydrocarbon contamination from mud) and 2383.0 m (2382 m TVD; water).

The well was permanently abandoned on 13 September 2011 as a minor gas discovery.

### Testing

No drill stem test was performed.

## Cuttings at the Norwegian Offshore Directorate

| Cutting sample, top depth [m] | Cutting samples, bottom depth [m] |
|-------------------------------|-----------------------------------|
| 510.00                        | 2270.00                           |



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

**Palynological slides at the Norwegian Offshore Directorate**

| Sample depth | Depth unit | Sample type | Laboratory |
|--------------|------------|-------------|------------|
| 1160.0       | [m]        | DC          | FUGRO      |
| 1180.0       | [m]        | DC          | FUGRO      |
| 1200.0       | [m]        | DC          | FUGRO      |
| 1220.0       | [m]        | DC          | FUGRO      |
| 1240.0       | [m]        | DC          | FUGRO      |
| 1260.0       | [m]        | DC          | FUGRO      |
| 1280.0       | [m]        | DC          | FUGRO      |
| 1300.0       | [m]        | DC          | FUGRO      |
| 1330.0       | [m]        | DC          | FUGRO      |
| 1340.0       | [m]        | DC          | FUGRO      |
| 1370.0       | [m]        | DC          | FUGRO      |
| 1390.0       | [m]        | DC          | FUGRO      |
| 1400.0       | [m]        | DC          | FUGRO      |
| 1420.0       | [m]        | DC          | FUGRO      |
| 1440.0       | [m]        | DC          | FUGRO      |
| 1460.0       | [m]        | DC          | FUGRO      |
| 1480.0       | [m]        | DC          | FUGRO      |
| 1500.0       | [m]        | DC          | FUGRO      |
| 1520.0       | [m]        | DC          | FUGRO      |
| 1540.0       | [m]        | DC          | FUGRO      |
| 1560.0       | [m]        | DC          | FUGRO      |
| 1580.0       | [m]        | DC          | FUGRO      |
| 1600.0       | [m]        | DC          | FUGRO      |
| 1620.0       | [m]        | DC          | FUGRO      |
| 1640.0       | [m]        | DC          | FUGRO      |
| 1660.0       | [m]        | DC          | FUGRO      |
| 1680.0       | [m]        | DC          | FUGRO      |
| 1700.0       | [m]        | DC          | FUGRO      |
| 1720.0       | [m]        | DC          | FUGRO      |
| 1740.0       | [m]        | DC          | FUGRO      |
| 1760.0       | [m]        | DC          | FUGRO      |
| 1790.0       | [m]        | DC          | FUGRO      |
| 1800.0       | [m]        | DC          | FUGRO      |
| 1820.0       | [m]        | DC          | FUGRO      |
| 1840.0       | [m]        | DC          | FUGRO      |



|        |     |    |       |
|--------|-----|----|-------|
| 1860.0 | [m] | DC | FUGRO |
| 1880.0 | [m] | DC | FUGRO |
| 1900.0 | [m] | DC | FUGRO |
| 1920.0 | [m] | DC | FUGRO |
| 1940.0 | [m] | DC | FUGRO |
| 1960.0 | [m] | DC | FUGRO |
| 1980.0 | [m] | DC | FUGRO |
| 2000.0 | [m] | DC | FUGRO |
| 2020.0 | [m] | DC | FUGRO |
| 2040.0 | [m] | DC | FUGRO |
| 2060.0 | [m] | DC | FUGRO |
| 2080.0 | [m] | DC | FUGRO |
| 2100.0 | [m] | DC | FUGRO |
| 2120.0 | [m] | DC | FUGRO |
| 2140.0 | [m] | DC | FUGRO |
| 2160.0 | [m] | DC | FUGRO |
| 2180.0 | [m] | DC | FUGRO |
| 2200.0 | [m] | DC | FUGRO |
| 2220.0 | [m] | DC | FUGRO |
| 2240.0 | [m] | DC | FUGRO |
| 2270.0 | [m] | DC | FUGRO |
| 2280.0 | [m] | DC | FUGRO |
| 2283.0 | [m] | DC | FUGRO |
| 2289.0 | [m] | DC | FUGRO |
| 2295.0 | [m] | DC | FUGRO |
| 2301.0 | [m] | DC | FUGRO |
| 2307.0 | [m] | DC | FUGRO |
| 2313.0 | [m] | DC | FUGRO |
| 2319.0 | [m] | DC | FUGRO |
| 2325.0 | [m] | DC | FUGRO |
| 2331.0 | [m] | DC | FUGRO |
| 2337.0 | [m] | DC | FUGRO |
| 2343.0 | [m] | DC | FUGRO |
| 2349.0 | [m] | DC | FUGRO |
| 2355.0 | [m] | DC | FUGRO |
| 2361.0 | [m] | DC | FUGRO |
| 2367.0 | [m] | DC | FUGRO |
| 2373.0 | [m] | DC | FUGRO |
| 2379.0 | [m] | DC | FUGRO |
| 2385.0 | [m] | DC | FUGRO |



|        |     |    |       |
|--------|-----|----|-------|
| 2391.0 | [m] | DC | FUGRO |
| 2397.0 | [m] | DC | FUGRO |
| 2403.0 | [m] | DC | FUGRO |
| 2406.0 | [m] | DC | FUGRO |
| 2412.0 | [m] | DC | FUGRO |
| 2418.0 | [m] | DC | FUGRO |
| 2424.0 | [m] | DC | FUGRO |
| 2430.0 | [m] | DC | FUGRO |
| 2436.0 | [m] | DC | FUGRO |
| 2442.0 | [m] | DC | FUGRO |
| 2448.0 | [m] | DC | FUGRO |
| 2454.0 | [m] | DC | FUGRO |
| 2460.0 | [m] | DC | FUGRO |
| 2466.0 | [m] | DC | FUGRO |
| 2484.0 | [m] | DC | FUGRO |
| 2490.0 | [m] | DC | FUGRO |
| 2496.0 | [m] | DC | FUGRO |
| 2502.0 | [m] | DC | FUGRO |
| 2508.0 | [m] | DC | FUGRO |
| 2515.0 | [m] | DC | FUGRO |

**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 |
|-----------|---------------|------------------|---------------------|-------------|--------------------|-------------------|
| MDT       |               | 2348.70          | 0.00                | CONDE NSATE | 09.02.2011 - 00:00 | NO                |

**Lithostratigraphy**

| Top depth [mMD RKB] | Lithostrat. unit               |
|---------------------|--------------------------------|
| 107                 | <a href="#">NORDLAND GP</a>    |
| 793                 | <a href="#">UTSIRA FM</a>      |
| 1107                | <a href="#">HORDALAND GP</a>   |
| 1398                | <a href="#">SKADE FM</a>       |
| 1414                | <a href="#">NO FORMAL NAME</a> |
| 1951                | <a href="#">GRID FM</a>        |
| 2002                | <a href="#">NO FORMAL NAME</a> |



|      |                             |
|------|-----------------------------|
| 2172 | <a href="#">ROGALAND GP</a> |
| 2172 | <a href="#">BALDER FM</a>   |
| 2217 | <a href="#">SELE FM</a>     |
| 2264 | <a href="#">LISTA FM</a>    |
| 2335 | <a href="#">VÅLE FM</a>     |
| 2349 | <a href="#">TY FM</a>       |
| 2467 | <a href="#">SHETLAND GP</a> |
| 2467 | <a href="#">EKOFISK FM</a>  |
| 2500 | <a href="#">TOR FM</a>      |

## Logs

| Log type                     | Log top depth [m] | Log bottom depth [m] |
|------------------------------|-------------------|----------------------|
| GPIT MSIP PEX                | 503               | 1160                 |
| GPIT MSIP PEX GR             | 1030              | 2265                 |
| GPIT MSIP PEX GR             | 2140              | 2513                 |
| MDT                          | 2347              | 2347                 |
| MDT                          | 2490              | 2490                 |
| MDT TLC                      | 2348              | 2383                 |
| MWD LWD - ARC ECOS SON TELES | 107               | 610                  |
| MWD LWD - ARCVRES6 TELE      | 1944              | 2283                 |
| MWD LWD - ARCVRS9 TELES      | 503               | 2278                 |
| MWD LWD - IMPVRES4 VPWD4     | 2283              | 2514                 |
| PEX GR                       | 1117              | 2185                 |
| USIT                         | 2000              | 2280                 |
| VSP                          | 1956              | 2350                 |
| VSP GR                       | 520               | 2183                 |

## 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                  | 172.0            | 36                | 172.0          | 0.00                     | LOT                 |
| SURF.COND.  | 20                  | 497.0            | 26                | 503.0          | 1.46                     | LOT                 |
| PILOT HOLE  |                     | 610.0            | 8 1/2             | 610.0          | 0.00                     | LOT                 |
| INTERM.     | 13 3/8              | 1151.0           | 17 1/2            | 1151.0         | 1.76                     | LOT                 |
| INTERM.     | 9 5/8               | 1905.0           | 12 1/4            | 2265.0         | 0.00                     | LOT                 |
| LINER       | 7                   | 2282.0           | 8 1/2             | 2282.0         | 1.35                     | LOT                 |



|           |  |        |   |        |      |     |
|-----------|--|--------|---|--------|------|-----|
| OPEN HOLE |  | 2514.0 | 6 | 2514.0 | 0.00 | LOT |
|-----------|--|--------|---|--------|------|-----|

**Drilling mud**

| Depth<br>MD [m] | Mud<br>weight<br>[g/cm3] | Visc.<br>[mPa.s] | Yield point<br>[Pa] | Mud type     | Date<br>measured |
|-----------------|--------------------------|------------------|---------------------|--------------|------------------|
| 150             | 1.03                     | 15.0             |                     | Spud Mud     |                  |
| 347             | 1.33                     | 19.0             |                     | Spud Mud     |                  |
| 487             | 1.31                     | 20.0             |                     | Spud Mud     |                  |
| 503             | 1.24                     | 12.0             |                     | Performadril |                  |
| 1160            | 1.30                     | 28.0             |                     | Performadril |                  |
| 1180            | 1.18                     | 19.0             |                     | XP-07 - #14  |                  |
| 1906            | 1.45                     | 32.0             |                     | XP-07 - #14  |                  |
| 1944            | 1.45                     | 23.0             |                     | XP-07 - #14  |                  |
| 2072            | 1.31                     | 16.0             |                     | Spud Mud     |                  |
| 2072            | 1.30                     | 15.0             |                     | Spud Mud     |                  |
| 2278            | 1.35                     | 19.0             |                     | XP-07 - #14  |                  |
| 2278            | 1.35                     | 21.0             |                     | XP-07 - #14  |                  |
| 2283            | 1.47                     | 25.0             |                     | XP-07 - #14  |                  |
| 2514            | 1.24                     | 17.0             |                     | XP-07 - #14  |                  |
| 2514            | 1.20                     | 16.0             |                     | XP-07 - #14  |                  |