



## Generell informasjon

|                                          |                                         |
|------------------------------------------|-----------------------------------------|
| Brønnbane navn                           | 6406/6-3                                |
| Type                                     | EXPLORATION                             |
| Formål                                   | WILDCAT                                 |
| Status                                   | P&A                                     |
| Pressemelding                            | <a href="#">lenke til pressemelding</a> |
| Faktakart i nytt vindu                   | <a href="#">lenke til kart</a>          |
| Hovedområde                              | NORWEGIAN SEA                           |
| Funn                                     | <a href="#">6406/6-3 (Mjøsa)</a>        |
| Brønn navn                               | 6406/6-3                                |
| Seismisk lokalisering                    | WINO09M02 inline 760 & xline 2806       |
| Utvinningstillatelse                     | <a href="#">511</a>                     |
| Boreoperatør                             | Wintershall Norge AS                    |
| Boretillatelse                           | 1446-L                                  |
| Boreinnretning                           | <a href="#">TRANSOCEAN ARCTIC</a>       |
| Boredager                                | 86                                      |
| Borestart                                | 14.04.2013                              |
| Boreslutt                                | 09.07.2013                              |
| Frigitt dato                             | 09.07.2015                              |
| Publiseringsdato                         | 13.08.2015                              |
| Opprinnelig formål                       | WILDCAT                                 |
| Gjenåpnet                                | NO                                      |
| Innhold                                  | GAS                                     |
| Funnbrønnbane                            | YES                                     |
| 1. nivå med hydrokarboner, alder         | MIDDLE JURASSIC                         |
| 1. nivå med hydrokarboner, formasjon.    | GARN FM                                 |
| Avstand, boredekk - midlere havflate [m] | 24.0                                    |
| Vanndybde ved midlere havflate [m]       | 243.0                                   |
| Totalt målt dybde (MD) [m RKB]           | 4420.0                                  |
| Totalt vertikalt dybde (TVD) [m RKB]     | 4419.0                                  |
| Maks inklinasjon [°]                     | 5.1                                     |
| Temperatur ved bunn av brønnbanen [°C]   | 159                                     |
| Eldste penetrerte alder                  | EARLY JURASSIC                          |
| Eldste penetrerte formasjon              | ÅRE FM                                  |
| Geodetisk datum                          | ED50                                    |
| NS grader                                | 64° 34' 24.49" N                        |



|                      |                 |
|----------------------|-----------------|
| ØV grader            | 6° 58' 27.53" E |
| NS UTM [m]           | 7162647.49      |
| ØV UTM [m]           | 402962.76       |
| UTM sone             | 32              |
| NPDID for brønnbanen | 7156            |

## Brønnhistorie

### General

Well 6406/6-3 Mjøsa was drilled on the Halten Terrace in the Norwegian Sea, about 25 kilometres south of the Tyrihans field and about 15 kilometres northeast of the 6406/9-1 Linnorm discovery. The primary target was the Middle Jurassic Ile Formation with secondary targets in the Lower Jurassic of Tofte, Tilje and Åre Formation.

### Operations and results

Wildcat well 6406/6-3 was spudded with the semi-submersible installation Transocean Arctic on 14 April 2013 and drilled to TD at 4420 m in the Early Jurassic Åre Formation. A 9 7/8" pilot hole was drilled from 377 m to 1400 m to check for shallow gas. No shallow gas was seen. Operations proceeded without significant problems. The well was drilled with seawater down to 377 m, with KCI/GEM/polymer mud from 377 m to 1400 m, and with XP-07 oil based mud from 1400 m to TD.

The Melke Formation, where the 9-7/8" casing was set, was found thinner than expected due to condensed and partially eroded section on top of the structure. The Garn Formation was encountered at 3802 m. The Garn Formation was evaluated pre-drill as most likely shaled out, but proved to have good overall reservoir quality and was also found to contain dry gas in the topmost part with a gas-water contact at 3816 m. All the pre-drill Jurassic targets deeper down were found water bearing and in general with better than expected reservoir quality. No oil shows were described in the well.

No conventional cores were cut. Sidewall cores were taken in the Garn Formation. RCX fluid samples were taken at 3803 m (gas) and 3841.5 m (water).

The well was permanently abandoned on 9 July 2013 as a gas discovery.

### Testing

No drill stem test was performed.

## Borekaks i Sokkeldirektoratet

|                               |                               |
|-------------------------------|-------------------------------|
| Borekaksprøve, topp dybde [m] | Borekaksprøve, bunn dybde [m] |
| 1410.00                       | 4421.00                       |

|                                        |     |
|----------------------------------------|-----|
| Borekaks tilgjengelig for prøvetaking? | YES |
|----------------------------------------|-----|

## Litostratigrafi



| Topp Dyb<br>[mMD RKB] | Litostrat. enhet                |
|-----------------------|---------------------------------|
| 267                   | <a href="#">NORDLAND GP</a>     |
| 555                   | <a href="#">NAUST FM</a>        |
| 1337                  | <a href="#">KAI FM</a>          |
| 1669                  | <a href="#">HORDALAND GP</a>    |
| 1669                  | <a href="#">BRYGGE FM</a>       |
| 2173                  | <a href="#">ROGALAND GP</a>     |
| 2173                  | <a href="#">TARE FM</a>         |
| 2258                  | <a href="#">TANG FM</a>         |
| 2324                  | <a href="#">SHETLAND GP</a>     |
| 2324                  | <a href="#">SPRINGAR FM</a>     |
| 2505                  | <a href="#">NISE FM</a>         |
| 2758                  | <a href="#">KVITNOS FM</a>      |
| 2848                  | <a href="#">CROMER KNOLL GP</a> |
| 2848                  | <a href="#">LYSING FM</a>       |
| 3172                  | <a href="#">LANGE FM</a>        |
| 3721                  | <a href="#">LYR FM</a>          |
| 3732                  | <a href="#">VIKING GP</a>       |
| 3732                  | <a href="#">SPEKK FM</a>        |
| 3753                  | <a href="#">MELKE FM</a>        |
| 3802                  | <a href="#">FANGST GP</a>       |
| 3802                  | <a href="#">GARN FM</a>         |
| 3855                  | <a href="#">NOT FM</a>          |
| 3921                  | <a href="#">ILE FM</a>          |
| 4035                  | <a href="#">BÅT GP</a>          |
| 4035                  | <a href="#">ROR FM</a>          |
| 4064                  | <a href="#">TOFTE FM</a>        |
| 4075                  | <a href="#">ROR FM</a>          |
| 4188                  | <a href="#">TILJE FM</a>        |
| 4373                  | <a href="#">ÅRE FM</a>          |

## Logger

| Type logg                           | Topp dyp<br>for logg [m] | Bunn dyp for<br>logg [m] |
|-------------------------------------|--------------------------|--------------------------|
| CCL GR SBT VDL                      | 3000                     | 3780                     |
| GR ASR                              | 1450                     | 4378                     |
| MRCH JAR GR MAXCOR                  | 3640                     | 3694                     |
| MRCH JAR TTRM DSL CN ZDL<br>ORIT HD | 267                      | 4416                     |



|                                     |      |      |
|-------------------------------------|------|------|
| MRCH JAR TTRM GR 6TC IFX RCX        | 3803 | 4358 |
| MRCH JAR TTRM GR RCX                | 3808 | 3984 |
| MWD - DIR PWD                       | 265  | 377  |
| MWD - DIR PWD GR RES                | 381  | 1400 |
| MWD - DIR PWD GR RES DIR SON        | 1400 | 2290 |
| MWD - DIR PWD GR RES SON<br>DEN POR | 2290 | 3797 |
| MWD - DIR PWD GR RES TESTRAC<br>RES | 3797 | 4420 |
| VSP                                 | 500  | 4408 |

### Foringsrør og formasjonsstyrketester

| Type utforing | Utforing<br>diam.<br>[tommer] | Utforing<br>dybde<br>[m] | Brønnbane<br>diam.<br>[tommer] | Brønnbane<br>dyp<br>[m] | LOT/FIT slam<br>eqv.<br>[g/cm3] | Type<br>formasjonstest |
|---------------|-------------------------------|--------------------------|--------------------------------|-------------------------|---------------------------------|------------------------|
| CONDUCTOR     | 30                            | 377.0                    | 36                             | 377.0                   | 0.00                            |                        |
| SURF.COND.    | 20                            | 1395.0                   | 26                             | 1400.0                  | 0.00                            |                        |
| PILOT HOLE    |                               | 1400.0                   | 9 7/8                          | 1400.0                  | 0.00                            |                        |
| INTERM.       | 13 3/8                        | 2285.0                   | 17 1/2                         | 2290.0                  | 0.00                            |                        |
| LINER         | 9 7/8                         | 3788.0                   | 12 1/4                         | 3797.0                  | 0.00                            |                        |
| OPEN HOLE     |                               | 4420.0                   | 8 1/2                          | 4420.0                  | 0.00                            |                        |

### Boreslam

| Dybde<br>MD [m] | Egenvekt,<br>slam<br>[g/cm3] | Viskositet,<br>slam<br>[mPa.s] | Flytegrense<br>[Pa] | Type slam        | Dato, måling |
|-----------------|------------------------------|--------------------------------|---------------------|------------------|--------------|
| 381             | 1.34                         | 15.0                           |                     | Performadril     |              |
| 394             | 1.02                         | 1.0                            |                     | Seawater         |              |
| 501             | 1.64                         | 28.0                           |                     | HT-XP-07 Low ECD |              |
| 1223            | 1.34                         | 20.0                           |                     | KCI GEM Polymer  |              |
| 1400            | 1.35                         | 12.0                           |                     | KCI GEM Polymer  |              |
| 1400            | 1.29                         | 12.0                           |                     | KCI GEM Polymer  |              |
| 2200            | 1.84                         | 37.0                           |                     | HT-XP-07 Low ECD |              |
| 2200            | 1.84                         | 36.0                           |                     | HT-XP-07 Low ECD |              |
| 2200            | 1.80                         | 35.0                           |                     | HT-XP-07 Low ECD |              |
| 2290            | 1.67                         | 39.0                           |                     | XP-07 Yellow     |              |
| 3543            | 1.90                         | 56.0                           |                     | HT-XP-07 Low ECD |              |
| 3797            | 1.80                         | 44.0                           |                     | HT-XP-07 Low ECD |              |
| 3923            | 1.94                         | 52.0                           |                     | HT-XP-07 Low ECD |              |
| 4091            | 1.90                         | 50.0                           |                     | HT-XP-07 Low ECD |              |



|      |      |      |  |                  |  |
|------|------|------|--|------------------|--|
| 4420 | 1.89 | 49.0 |  | HT-XP-07 Low ECD |  |
|------|------|------|--|------------------|--|