



## Generell informasjon

|                                          |                                                                    |
|------------------------------------------|--------------------------------------------------------------------|
| Brønnbane navn                           | 35/11-17                                                           |
| 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                              | NORTH SEA                                                          |
| Felt                                     | <a href="#">FRAM</a>                                               |
| Funn                                     | <a href="#">35/11-17 (F-Vest)</a>                                  |
| Brønn navn                               | 35/11-17                                                           |
| Seismisk lokalisering                    | NH 0503_FT:inline<br>2788&XLINE2088.depth target :2315<br>mTVD RKB |
| Utvinningstillatelse                     | <a href="#">090</a>                                                |
| Boreoperatør                             | Statoil Petroleum AS                                               |
| Boretillatelse                           | 1506-L                                                             |
| Boreinnretning                           | <a href="#">SONGA TRYM</a>                                         |
| Boredager                                | 39                                                                 |
| Borestart                                | 24.03.2014                                                         |
| Boreslutt                                | 01.05.2014                                                         |
| Frigitt dato                             | 01.05.2016                                                         |
| Publiseringsdato                         | 01.05.2016                                                         |
| Opprinnelig formål                       | WILDCAT                                                            |
| Gjenåpnet                                | NO                                                                 |
| Innhold                                  | OIL/GAS                                                            |
| Funnbrønnbane                            | YES                                                                |
| 1. nivå med hydrokarboner, alder         | MIDDLE JURASSIC                                                    |
| 1. nivå med hydrokarboner, formasjon.    | FENSFJORD FM                                                       |
| 2. nivå med hydrokarboner, alder         | MIDDLE JURASSIC                                                    |
| 2. nivå med hydrokarboner, formasjon     | ETIVE FM                                                           |
| 3. nivå med hydrokarboner, alder         | MIDDLE JURASSIC                                                    |
| 3. nivå med hydrokarboner, formasjon     | OSEBERG FM                                                         |
| Avstand, boredekk - midlere havflate [m] | 25.0                                                               |
| Vanndybde ved midlere havflate [m]       | 357.0                                                              |
| Totalt målt dybde (MD) [m RKB]           | 2889.0                                                             |



|                                        |                 |
|----------------------------------------|-----------------|
| Totalt vertikalt dybde (TVD) [m RKB]   | 2889.0          |
| Maks inklinasjon [°]                   | 2.4             |
| Temperatur ved bunn av brønnbanen [°C] | 107             |
| Eldste penetrerte alder                | EARLY JURASSIC  |
| Eldste penetrerte formasjon            | COOK FM         |
| Geodetisk datum                        | ED50            |
| NS grader                              | 61° 3' 31.22" N |
| ØV grader                              | 3° 31' 56.88" E |
| NS UTM [m]                             | 6769600.06      |
| ØV UTM [m]                             | 528746.99       |
| UTM sone                               | 31              |
| NPDID for brønnbanen                   | 7408            |

## Brønnhistorie

**General**

Well 35/11-17 was drilled to test the Fram West prospect on the Lomre Terrace in the northern North Sea. The primary objective was to test the hydrocarbon potential in the Middle Jurassic Brent Group. Secondary objective was to test the hydrocarbon potential in Middle Jurassic Fensfjord Formation. The Late Jurassic Sognefjord Formation was also expected to be present, but not considered as a significant target.

**Operations and results**

Wildcat well 35/11-17 was spudded with the semi-submersible installation Songa Trym on 24 March 2014 and drilled to TD at 2889 m in the Cook Formation. No significant problem was encountered in the operations. The well was drilled with Seawater down to 622 m, with KCl/Polymer/Glycol mud from 622 m to 1190 m, with XP-07 oil based mud from 1190 m to 2052 m, and with KCl/polymer/glycol mud from 2052 m to TD.

In well 35/11-17, hydrocarbons were encountered both in the overburden and in the reservoir. The first hydrocarbon were seen at 1590 to 1602 m within the Lista Formation. There was a small increase in gas, increased resistivity, and poor oil shows masked by the oil based mud. Further down in the Shetland there were also two thin sand layers from 2025-2027 m MD with poor oil shows. In the Late Jurassic Sognefjord Formation three 4-7 meter thick calcite cemented sandstones with possible hydrocarbons were found.

In the target reservoir sections, hydrocarbons were found at four levels. Gas in a gas down-to situation was found in the Fensfjord Formation from 2352.6 to 2363 m. The Fensfjord Formation also proved oil from 2374 m to an OWC at 2390 m. The Fensfjord reservoir seems to be depleted, and the pressure in the Fensfjord gas is higher than in the oil below, indicating that the shale between the upper gas and the lower oil is a pressure barrier. In the Brent Group, oil was present in the Etive Formation from 2712 m to an OWC at 2722.4 m. The Oseberg Formation had oil from 2773 m to an OWC at 2782.6 m. There were no indication of pressure depletion in the Brent reservoirs.

Three cores were cut. Core #1 and #2 were cut from 2358 m in the Fensfjord Formation to 2412 m in the Heather Formation with 100 % recovery. Core #3 was cut from 2718 m in the Etive formation to 2772 m at the base of Rannoch Formation with 98% recovery. MDT fluid samples were taken at 2354 m (gas), 2376 m (oil), 2399 m (water), 2719 m (oil), 2741 m (water), and 2776 m (oil).

The well was permanently abandoned on 1 May 2014 as an oil and gas discovery.

**Testing**

No drill stem test was performed.

**Borekaks i Sokkeldirektoratet**

| Borekaksprøve, topp dybde [m] | Borekaksprøve, bunn dybde [m] |
|-------------------------------|-------------------------------|
| 630.00                        | 2888.00                       |

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

**Borekjerter i Sokkeldirektoratet**



| Kjerneprøve nummer | Kjerneprøve - topp dybde | Kjerneprøve - bunn dybde | Kjerneprøve dybde - enhet |
|--------------------|--------------------------|--------------------------|---------------------------|
| 1                  | 2358.0                   | 2385.5                   | [m ]                      |
| 2                  | 2385.5                   | 2412.7                   | [m ]                      |
| 3                  | 2718.0                   | 2771.0                   | [m ]                      |

|                                       |       |
|---------------------------------------|-------|
| Total kjerneprøve lengde [m]          | 107.7 |
| Kjerner tilgjengelig for prøvetaking? | YES   |

### Oljeprøver i Sokkeldirektoratet

| Test type | Flaske nummer | Topp dyp MD [m] | Bunn dyp MD [m] | Væske type | Test tidspunkt | Prøver tilgjengelig |
|-----------|---------------|-----------------|-----------------|------------|----------------|---------------------|
| MDT       |               | 2775.90         | 0.00            | OIL        |                | YES                 |
| MDT       |               | 2718.90         | 0.00            | OIL        |                | YES                 |
| MDT       |               | 2376.00         | 0.00            | OIL        |                | YES                 |

### Litostratigrafi

| Topp Dyb [mMD RKB] | Litostrat. enhet                 |
|--------------------|----------------------------------|
| 382                | <a href="#">NORDLAND GP</a>      |
| 701                | <a href="#">UTSIRA FM</a>        |
| 766                | <a href="#">HORDALAND GP</a>     |
| 766                | <a href="#">UNDIFFERENTIATED</a> |
| 1455               | <a href="#">ROGALAND GP</a>      |
| 1455               | <a href="#">BALDER FM</a>        |
| 1500               | <a href="#">SELE FM</a>          |
| 1555               | <a href="#">LISTA FM</a>         |
| 1643               | <a href="#">VÅLE FM</a>          |
| 1674               | <a href="#">TY FM</a>            |
| 1778               | <a href="#">VÅLE FM</a>          |
| 1904               | <a href="#">SHETLAND GP</a>      |
| 1904               | <a href="#">JORSALFARE FM</a>    |
| 1974               | <a href="#">KYRRE FM</a>         |
| 2145               | <a href="#">VIKING GP</a>        |



|      |                               |
|------|-------------------------------|
| 2145 | <a href="#">SOGNEFJORD FM</a> |
| 2184 | <a href="#">HEATHER FM</a>    |
| 2353 | <a href="#">FENSFJORD FM</a>  |
| 2402 | <a href="#">HEATHER FM</a>    |
| 2677 | <a href="#">BRENT GP</a>      |
| 2677 | <a href="#">NESS FM</a>       |
| 2712 | <a href="#">ETIVE FM</a>      |
| 2744 | <a href="#">RANNOCH FM</a>    |
| 2773 | <a href="#">OSEBERG FM</a>    |
| 2837 | <a href="#">DUNLIN GP</a>     |
| 2837 | <a href="#">DRAKE FM</a>      |
| 2847 | <a href="#">COOK FM</a>       |

### Logger

| Type logg                           | Topp dyp<br>for logg [m] | Bunn dyp for<br>logg [m] |
|-------------------------------------|--------------------------|--------------------------|
| CMR MDT GR                          | 2051                     | 2289                     |
| FMI MSIP                            | 1320                     | 2889                     |
| HRLA PEX HNGS GR                    | 2051                     | 2889                     |
| MDT GR                              | 2353                     | 2776                     |
| MSCT GR                             | 2145                     | 2836                     |
| MWD LWD - ARC TELE                  | 382                      | 1190                     |
| MWD LWD - PDX5 ARCVRES8<br>TELE SAD | 1190                     | 2052                     |
| MWD LWD - RAB6 ARC6 TELE675         | 2052                     | 2889                     |
| USIT CBL GR                         | 1035                     | 2041                     |
| VSP GR                              | 339                      | 2819                     |

### 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                            | 431.6                    | 36                             | 434.4                   | 0.00                            |                        |
| SURF.COND.    | 20                            | 614.7                    | 26                             | 622.0                   | 1.20                            | FIT                    |
| INTERM.       | 13 3/8                        | 1183.3                   | 17 1/2                         | 1190.0                  | 1.41                            | FIT                    |
| LINER         | 9 5/8                         | 2050.9                   | 12 1/4                         | 2052.0                  | 1.37                            | FIT                    |
| OPEN HOLE     |                               | 2889.0                   | 8 1/2                          | 2889.0                  | 0.00                            |                        |



**Boreslam**

| Dybde<br>MD [m] | Egenvekt,<br>slam<br>[g/cm <sup>3</sup> ] | Viskositet,<br>slam<br>[mPa.s] | Flytegrense<br>[Pa] | Type slam          | Dato, måling |
|-----------------|-------------------------------------------|--------------------------------|---------------------|--------------------|--------------|
| 570             | 1.25                                      | 13.0                           |                     | KCl/Polymer/GEM    |              |
| 570             | 1.03                                      |                                |                     | Seawater           |              |
| 570             | 1.03                                      |                                |                     | Seawater           |              |
| 622             | 1.14                                      | 20.0                           |                     | KCl/Polymer/GEM    |              |
| 795             | 1.17                                      | 17.0                           |                     | KCl/Polymer/Glycol |              |
| 1172            | 1.32                                      | 17.0                           |                     | XP-07 - Yellow     |              |
| 1190            | 1.16                                      | 20.0                           |                     | KCl/Polymer/GEM    |              |
| 1265            | 1.31                                      | 21.0                           |                     | XP-07 - Yellow     |              |
| 1445            | 1.20                                      | 16.0                           |                     | KCl/Polymer/GEM    |              |
| 1650            | 1.32                                      | 23.0                           |                     | XP-07 - Yellow     |              |
| 1889            | 1.20                                      | 17.0                           |                     | KCl/Polymer/GEM    |              |
| 2052            | 1.17                                      | 16.0                           |                     | KCl/Polymer/GEM    |              |
| 2052            | 1.32                                      | 19.0                           |                     | XP-07 - Yellow     |              |
| 2073            | 1.20                                      | 18.0                           |                     | KCl/Polymer/GEM    |              |
| 2411            | 1.21                                      | 18.0                           |                     | KCl/Polymer/GEM    |              |
| 2888            | 1.20                                      | 20.0                           |                     | KCl/Polymer/GEM    |              |