



## Generell informasjon

|                                          |                                      |
|------------------------------------------|--------------------------------------|
| Brønnbane navn                           | 2/5-11                               |
| Type                                     | EXPLORATION                          |
| Formål                                   | WILDCAT                              |
| Status                                   | P&A                                  |
| Faktakart i nytt vindu                   | <a href="#">lenke til kart</a>       |
| Hovedområde                              | NORTH SEA                            |
| Funn                                     | <a href="#">2/5-11 (Tjatse)</a>      |
| Brønn navn                               | 2/5-11                               |
| Seismisk lokalisering                    | STTM-94 INLINE 1222 & CROSSLINE 1490 |
| Utvinningstillatelse                     | <a href="#">067</a>                  |
| Boreoperatør                             | Norsk Agip AS                        |
| Boretillatelse                           | 905-L                                |
| Boreinnretning                           | <a href="#">TRANSOCEAN NORDIC</a>    |
| Boredager                                | 70                                   |
| Borestart                                | 06.09.1997                           |
| Boreslutt                                | 14.11.1997                           |
| Frigitt dato                             | 14.11.1999                           |
| Publiseringsdato                         | 29.05.2002                           |
| Opprinnelig formål                       | WILDCAT                              |
| Gjenåpnet                                | NO                                   |
| Innhold                                  | OIL                                  |
| Funnbrønnbane                            | YES                                  |
| 1. nivå med hydrokarboner, alder         | PALEOCENE                            |
| 1. nivå med hydrokarboner, formasjon.    | EKOFISK FM                           |
| 2. nivå med hydrokarboner, alder         | LATE CRETACEOUS                      |
| 2. nivå med hydrokarboner, formasjon     | TOR FM                               |
| Avstand, boredekk - midlere havflate [m] | 39.5                                 |
| Vanndybde ved midlere havflate [m]       | 64.0                                 |
| Totalt målt dybde (MD) [m RKB]           | 3550.0                               |
| Totalt vertikalt dybde (TVD) [m RKB]     | 3550.0                               |
| Maks inklinasjon [°]                     | 1.3                                  |
| Temperatur ved bunn av brønnbanen [°C]   | 130                                  |
| Eldste penetrerte alder                  | LATE CRETACEOUS                      |
| Eldste penetrerte formasjon              | TOR FM                               |



|                      |                  |
|----------------------|------------------|
| Geodetisk datum      | ED50             |
| NS grader            | 56° 42' 16.23" N |
| ØV grader            | 3° 23' 1.65" E   |
| NS UTM [m]           | 6284699.93       |
| ØV UTM [m]           | 523500.09        |
| UTM sone             | 31               |
| NPDID for brønnbanen | 3084             |

## Brønnhistorie

### General

Well 2/5-11 was drilled primarily to explore the Sørime prospect located in the southwestern part of PL 067, which is north of the existing Tor field. The prospect was a stratigraphic chalk play thought to be separate from the hydrocarbon-bearing formation in the nearby well 2/5-7. The main purpose for drilling the well 2/5-11 was to test the hydrocarbon potential within the Maastrichtian Tor formation. A secondary target was to test the hydrocarbon potential in the Ekofisk Formation Tjatse prospect.

### Operations and results

The 2/5-11 well was spudded on 6 September 1997. "Transocean Nordic", a Jack-Up Rig, was used to drill and abandon the well. Operations took 20 days longer than planned. Main reasons for the extended time were 2 days of unplanned coring and 9 days waiting on weather. The well was drilled to a total depth of 3550 m in the Tor formation in the chalk. High viscosity bentonite mud was used to 780 m. From 780 m to TD the well was drilled water based with various combinations of KCl, polymer, PAC, and glycol.

The expected reservoir was encountered at 3362 m, 2 m deeper than prognosed. A FMT fluid sample containing mainly mud filtrate, some gas and small amounts of floating scummy oil was taken at 3444.3 m. An extensive logging program was employed to evaluate the Chalk sequence. After logging was completed, the logging information indicated that hydrocarbons were present and down hole testing was performed. Testing the well in two zones showed that, although hydrocarbons were present, there was a high content of water. Four cores were cut, one in the Ekofisk Formation (3312 m - 3330 m), one across the Ekofisk - Tor boundary (3330 m - 3366 m), and two in the Tor Formation (3393 m - 3419 m and 3418 m - 3465 m). The well was permanently plugged and abandoned as an oil discovery.

### Testing

Two tests were performed in the well. Test 1 in interval 3363 - 3381 m in the Tor Formation produced a total of 3.8 Sm<sup>3</sup> of 38.7 API gravity oil with a Bottom Sediments and Water percentage (BSW) close to 94%. Test 2 in interval 3289 - 3329 m in the Ekofisk Formation involved an acid job to improve recovery. Before the acid job the test produced a total of 12.8 Sm<sup>3</sup> of 38.7 API gravity oil with a BSW of 45%. After the acid job the test produced a total of 92 Sm<sup>3</sup> oil of 37.1 API gravity with a BSW close to 90%.

## Borekaks i Sokkeldirektoratet

|                               |                               |
|-------------------------------|-------------------------------|
| Borekaksprøve, topp dybde [m] | Borekaksprøve, bunn dybde [m] |
| 290.00                        | 3550.00                       |



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

### Borekjerne i Sokkeldirektoratet

| Kjerneprøve nummer | Kjerneprøve - topp dybde | Kjerneprøve - bunn dybde | Kjerneprøve dybde - enhet |
|--------------------|--------------------------|--------------------------|---------------------------|
| 1                  | 3312.0                   | 3330.0                   | [m ]                      |
| 2                  | 3330.0                   | 3366.0                   | [m ]                      |
| 3                  | 3393.0                   | 3418.0                   | [m ]                      |
| 4                  | 3419.0                   | 3465.0                   | [m ]                      |

|                                       |       |
|---------------------------------------|-------|
| Total kjerneprøve lengde [m]          | 125.0 |
| Kjerner tilgjengelig for prøvetaking? | YES   |

### Kjernebilder



3312-3317m



3317-3322m



3322-3327m



3327-3330m



3330-3335m



3335-3340m



3340-3345m



3345-3350m



3350-3355m



3355-3360m



3360-3365m



3365-3366m



3393-3398m



3398-3403m



3403-3408m



3408-3413m



3413-3418m



3419-3424m



3424-3429m



3429-3434m



3434-3439m



3439-3444m



3444-3449m



3449-3454m



3454-3459m



3459-3464m



3464-3465m

### Palynologiske preparater i Sökkeldirektoratet

| Prøve dybde | Dybde enhet | Prøve type | Laboratorie |
|-------------|-------------|------------|-------------|
| 3000.0      | [m]         | DC         | RRI         |
| 3010.0      | [m]         | DC         | RRI         |
| 3020.0      | [m]         | DC         | RRI         |
| 3030.0      | [m]         | DC         | RRI         |
| 3040.0      | [m]         | DC         | RRI         |
| 3050.0      | [m]         | DC         | RRI         |
| 3060.0      | [m]         | DC         | RRI         |
| 3070.0      | [m]         | DC         | RRI         |
| 3080.0      | [m]         | DC         | RRI         |
| 3090.0      | [m]         | DC         | RRI         |
| 3100.0      | [m]         | DC         | RRI         |
| 3110.0      | [m]         | DC         | RRI         |
| 3120.0      | [m]         | DC         | RRI         |
| 3130.0      | [m]         | DC         | RRI         |
| 3140.0      | [m]         | DC         | RRI         |
| 3150.0      | [m]         | DC         | RRI         |



|        |     |    |     |
|--------|-----|----|-----|
| 3160.0 | [m] | DC | RRI |
| 3170.0 | [m] | DC | RRI |
| 3180.0 | [m] | DC | RRI |
| 3190.0 | [m] | DC | RRI |
| 3200.0 | [m] | DC | RRI |

### Oljeprøver i Søkeldirektoratet

| Test type | Flaske nummer | Topp dyp MD [m] | Bunn dyp MD [m] | Væske type | Test tidspunkt     | Prøver tilgjengelig |
|-----------|---------------|-----------------|-----------------|------------|--------------------|---------------------|
| DST       | DST1          | 3381.00         | 3363.00         |            | 28.10.1997 - 21:45 | YES                 |
| DST       | DST2          | 0.00            | 0.00            |            | 03.11.1997 - 01:30 | YES                 |

### Litostratigrafi

| Topp Dyb [mMD RKB] | Litostrat. enhet             |
|--------------------|------------------------------|
| 104                | <a href="#">NORDLAND GP</a>  |
| 1752               | <a href="#">HORDALAND GP</a> |
| 3076               | <a href="#">ROGALAND GP</a>  |
| 3076               | <a href="#">BALDER FM</a>    |
| 3086               | <a href="#">SELE FM</a>      |
| 3096               | <a href="#">LISTA FM</a>     |
| 3181               | <a href="#">VÅLE FM</a>      |
| 3203               | <a href="#">SHETLAND GP</a>  |
| 3203               | <a href="#">EKOFISK FM</a>   |
| 3362               | <a href="#">TOR FM</a>       |

### Spleisede logger

| Dokument navn        | Dokument format | Dokument størrelse [KB] |
|----------------------|-----------------|-------------------------|
| <a href="#">3084</a> | pdf             | 0.27                    |

### Geokjemisk informasjon





| Dokument navn          | Dokument format | Dokument størrelse [KB] |
|------------------------|-----------------|-------------------------|
| <a href="#">3084_1</a> | pdf             | 0.60                    |

### Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

| Dokument navn                                 | Dokument format | Dokument størrelse [KB] |
|-----------------------------------------------|-----------------|-------------------------|
| <a href="#">3084_2_5_11_COMPLETION_REPORT</a> | pdf             | 112.06                  |

### Borestrengtester (DST)

| Test nummer | Fra dybde MD [m] | Til dybde MD [m] | Reduksjonsven til størrelse [mm] |
|-------------|------------------|------------------|----------------------------------|
| 1.0         | 3381             | 3363             | 19.0                             |
| 2.0         | 3329             | 3289             | 18.1                             |

| Test nummer | Endelig avstengningstrykk [MPa] | Endelig strømningstrykk [MPa] | Bunnhullstrykk [MPa] | Borehullstemperatur [°C] |
|-------------|---------------------------------|-------------------------------|----------------------|--------------------------|
| 1.0         | 46.240                          |                               |                      | 131                      |
| 2.0         | 47.200                          |                               |                      | 129                      |

| Test nummer | Olje produksjon [Sm3/dag] | Gass produksjon [Sm3/dag] | Oljetetthet [g/cm3] | Gasstygde rel. luft | GOR [m3/m3] |
|-------------|---------------------------|---------------------------|---------------------|---------------------|-------------|
| 1.0         | 4                         |                           | 0.829               |                     |             |
| 2.0         | 12                        |                           | 0.800               |                     | 120         |

### Logger

| Type logg          | Topp dyp for logg [m] | Bunn dyp for logg [m] |
|--------------------|-----------------------|-----------------------|
| DLL MLL MAC CAL GR | 3215                  | 3547                  |
| FMT GR             | 0                     | 0                     |
| LWD DPR            | 207                   | 3550                  |
| SBT GR CCL         | 3055                  | 3493                  |
| STAR ORIT DGR      | 3220                  | 3535                  |
| VSP CST            | 0                     | 0                     |





|                     |      |      |
|---------------------|------|------|
| ZDL CN DPIL HDIL SL | 3215 | 3529 |
|---------------------|------|------|

### Foringsrør og formasjonsstyrketester

| Type utforing | Utforing diam.<br>[tommer] | Utforing dybde<br>[m] | Brønnbane diam.<br>[tommer] | Brønnbane dyp<br>[m] | LOT/FIT slam<br>eqv.<br>[g/cm3] | Type formasjonstest |
|---------------|----------------------------|-----------------------|-----------------------------|----------------------|---------------------------------|---------------------|
| CONDUCTOR     | 30                         | 207.0                 | 36                          | 208.0                | 0.00                            | LOT                 |
| SURF.COND.    | 20                         | 770.0                 | 26                          | 772.0                | 0.00                            | LOT                 |
| INTERM.       | 13 3/8                     | 2013.0                | 17 1/2                      | 2020.0               | 0.00                            | LOT                 |
| INTERM.       | 9 5/8                      | 3220.0                | 12 1/4                      | 3225.0               | 0.00                            | LOT                 |
| LINER         | 7                          | 3550.0                | 8 1/2                       | 3550.0               | 0.00                            | LOT                 |

### Boreslam

| Dybde MD [m] | Egenvekt, slam<br>[g/cm3] | Viskositet, slam<br>[mPa.s] | Flytegrense [Pa] | Type slam      | Dato, måling |
|--------------|---------------------------|-----------------------------|------------------|----------------|--------------|
| 220          | 1.20                      | 14.0                        |                  | GEL/DW         |              |
| 230          | 1.03                      | 8.0                         |                  | SW/GEL         |              |
| 254          | 1.03                      | 6.0                         |                  | SW/GEL         |              |
| 283          | 1.03                      | 10.0                        |                  | DW/GEL         |              |
| 552          | 1.18                      | 6.0                         |                  | DW PHB         |              |
| 775          | 1.30                      | 37.0                        |                  | KCL/POLYMER    |              |
| 775          | 1.13                      | 5.0                         |                  | SW-GEL         |              |
| 1243         | 1.39                      | 22.0                        |                  | KCL/POLYMER    |              |
| 2020         | 1.55                      | 32.0                        |                  | KCL/SW         |              |
| 2020         | 1.55                      | 32.0                        |                  | KCL/POLYMER    |              |
| 2168         | 1.64                      | 38.0                        |                  | KCL/PAC/GLYCOL |              |
| 2550         | 1.68                      | 49.0                        |                  | KCL/PAC/GLYCOL |              |
| 2791         | 1.70                      | 50.0                        |                  | KCL/PAC/GLYCOL |              |
| 2999         | 1.68                      | 49.0                        |                  | KCL/PAC/GLYCOL |              |
| 2999         | 1.51                      | 29.0                        |                  | PAC-GLYCOL     |              |
| 3120         | 1.70                      | 48.0                        |                  | KCL/PAC/GLYCOL |              |
| 3195         | 1.50                      | 28.0                        |                  | PAC/GLYCOL     |              |
| 3225         | 1.70                      | 43.0                        |                  | KCL/PAC/GLYCOL |              |
| 3229         | 1.60                      | 57.0                        |                  | FW/PAC/GLYCOL  |              |
| 3248         | 1.57                      | 48.0                        |                  | FW/PAC/GLYCOL  |              |
| 3330         | 1.55                      | 30.0                        |                  | PAC            |              |
| 3356         | 1.54                      | 28.0                        |                  | PAC POLYMER    |              |
| 3356         | 1.50                      | 28.0                        |                  | PAC/GLYCOL     |              |



|      |      |      |  |             |  |
|------|------|------|--|-------------|--|
| 3360 | 1.54 | 29.0 |  | PAC-GLYCOL  |  |
| 3386 | 1.55 | 29.0 |  | PAC         |  |
| 3550 | 1.54 | 33.0 |  | PAC         |  |
| 3550 | 1.52 | 29.0 |  | PAC-GLYCOL  |  |
| 3556 | 1.54 | 30.0 |  | PAC POLYMER |  |

## Trykkplott

Porertrykksdataene kommer fra logging i brønnen hvis ingen annen kilde er oppgitt. I noen brønner der trykk ikke er logget, er det brukt informasjon fra formasjonstester eller brønnspark. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

| Dokument navn                                             | Dokument format | Dokument størrelse [KB] |
|-----------------------------------------------------------|-----------------|-------------------------|
| <a href="#">3084_Formation_pressure_(Formasjonstrykk)</a> | pdf             | 0.22                    |

