



## Generell informasjon

|                                          |                                |
|------------------------------------------|--------------------------------|
| Brønnbane navn                           | 2/8-10                         |
| Type                                     | EXPLORATION                    |
| Formål                                   | APPRAISAL                      |
| Status                                   | P&A                            |
| Faktakart i nytt vindu                   | <a href="#">lenke til kart</a> |
| Hovedområde                              | NORTH SEA                      |
| Felt                                     | <a href="#">VALHALL</a>        |
| Funn                                     | <a href="#">2/8-6 Valhall</a>  |
| Brønn navn                               | 2/8-10                         |
| Seismisk lokalisering                    | ANO72-06.SP140                 |
| Utvinningstillatelse                     | <a href="#">006</a>            |
| Boreoperatør                             | Amoco Norway Oil Company       |
| Boretillatelse                           | 157-L                          |
| Boreinnretning                           | <a href="#">SEDCO 135 G</a>    |
| Boredager                                | 61                             |
| Borestart                                | 30.06.1976                     |
| Boreslutt                                | 29.08.1976                     |
| Frigitt dato                             | 29.08.1978                     |
| Publiseringsdato                         | 16.10.2012                     |
| Opprinnelig formål                       | APPRAISAL                      |
| Gjenåpnet                                | NO                             |
| Innhold                                  | OIL                            |
| Funnbrønnbane                            | NO                             |
| 1. nivå med hydrokarboner, alder         | LATE CRETACEOUS                |
| 1. nivå med hydrokarboner, formasjon.    | TOR FM                         |
| 2. nivå med hydrokarboner, alder         | LATE CRETACEOUS                |
| 2. nivå med hydrokarboner, formasjon     | HOD FM                         |
| Avstand, boredekk - midlere havflate [m] | 33.0                           |
| Vanndybde ved midlere havflate [m]       | 69.0                           |
| Totalt målt dybde (MD) [m RKB]           | 2683.0                         |
| Totalt vertikalt dybde (TVD) [m RKB]     | 2682.0                         |
| Temperatur ved bunn av brønnbanen [°C]   | 69                             |
| Eldste penetrerte alder                  | EARLY CRETACEOUS               |
| Eldste penetrerte formasjon              | RØDBY FM                       |



|                      |                  |
|----------------------|------------------|
| Geodetisk datum      | ED50             |
| NS grader            | 56° 15' 53.32" N |
| ØV grader            | 3° 24' 58.81" E  |
| NS UTM [m]           | 6235769.11       |
| ØV UTM [m]           | 525789.33        |
| UTM sone             | 31               |
| NPDID for brønnbanen | 280              |

## Brønnhistorie

**General**

Well 2/8-10 was drilled as a field delineation well intended to help establish the commerciality of the Valhall Field, which was discovered by well 2/8-6 and confirmed by wells 2/8-8 and 2/8-9. The main purpose of 2/8-10 was to evaluate the Tor and Upper Hod reservoirs on the south eastern flank of the Valhall structure.

**Operations and results**

Appraisal well 2/8-10 was spudded with the semi-submersible installation Sedco 135 G on 30 June 1976 and drilled to TD at 2682 m in the Early Cretaceous Rødby Formation. The well was drilled with seawater and bentonite down to 375 m, and with seawater/lime/Driscopac mud from 375 m to TD.

The objective reservoirs, developed in chalk of the Tor and Hod Formations, were encountered at depths of 2476.5 m and 2516 m respectively. A gross pay interval of 77 m was encountered. The Tor Formation was approximately 38 m thick with an oil saturation of 95% and was tested at rates of up to 1000 Sm<sup>3</sup>/day. The upper Hod reservoir, approximately 38 m thick, was found to be hydrocarbon bearing, although oil saturations were low, averaging 25% and the reservoir was tested at up to 67 Sm<sup>3</sup>/day. As anticipated, the lower Hod reservoir was wet.

Only insignificant, although fairly consistent, oil shows were encountered in the Hordaland and Rogaland Groups. Excellent shows were recorded in the Tor Formation. The quality of the shows decreased gradually through the upper part of the Hod Formation and only minor oil shows were encountered below 2570 m.

Four conventional cores were cut in the interval 2477.1 m to 2508.5 m with an overall recovery of 70%. No wire line fluid samples were taken.

The well was permanently abandoned on 29 August 1976 as an oil appraisal well.

**Testing**

Three drill stem tests were conducted. DST1 and DST3 were conducted after fracturing the reservoirs using the Kiel water-frac process.

DST1 was conducted over the interval 2535.9 to 2546.6 m in the Hod Formation. It produced 57 Sm<sup>3</sup> oil/day with a GOR of 309 Sm<sup>3</sup>/Sm. Oil gravity was 31.9 deg API and gas gravity was 0.674 (air = 1).

DST2 was conducted over the interval 2493.2 to 2508.5 m in the lower Tor Formation. It produced 566 Sm<sup>3</sup> oil/day with a GOR of 138 Sm<sup>3</sup>/Sm. Oil gravity was 36.5 deg API and gas gravity was 0.653 (air = 1).

DST3 was conducted over the interval 2479.5 to 2485.6 m in the upper Tor Formation. It produced 876 Sm<sup>3</sup> oil/day with a GOR of 167 Sm<sup>3</sup>/Sm<sup>3</sup> through a 5/8" (15.9 mm) choke. Oil gravity was 37.5 deg API and gas gravity was 0.660 (air = 1). Sperry Sun reported a bottom hole temperature of 116.7 deg C from this test.



|                               |                               |
|-------------------------------|-------------------------------|
| Borekaksprøve, topp dybde [m] | Borekaksprøve, bunn dybde [m] |
| 182.88                        | 2682.24                       |

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

### Borekjerne i Sokkeldirektoratet

| Kjerneprøve nummer | Kjerneprøve - topp dybde | Kjerneprøve - bunn dybde | Kjerneprøve dybde - enhet |
|--------------------|--------------------------|--------------------------|---------------------------|
| 2                  | 8140.0                   | 8170.0                   | [ft ]                     |
| 3                  | 8173.0                   | 8188.0                   | [ft ]                     |
| 4                  | 8197.0                   | 8224.0                   | [ft ]                     |

|                                       |      |
|---------------------------------------|------|
| Total kjerneprøve lengde [m]          | 21.9 |
| Kjerner tilgjengelig for prøvetaking? | YES  |

### Litostratigrafi

| Topp Dyb [mMD RKB] | Litostrat. enhet                |
|--------------------|---------------------------------|
| 102                | <a href="#">NORDLAND GP</a>     |
| 1498               | <a href="#">HORDALAND GP</a>    |
| 2441               | <a href="#">ROGALAND GP</a>     |
| 2441               | <a href="#">BALDER FM</a>       |
| 2452               | <a href="#">SELE FM</a>         |
| 2462               | <a href="#">LISTA FM</a>        |
| 2477               | <a href="#">SHETLAND GP</a>     |
| 2477               | <a href="#">TOR FM</a>          |
| 2516               | <a href="#">HOD FM</a>          |
| 2636               | <a href="#">BLODØKS FM</a>      |
| 2639               | <a href="#">HIDRA FM</a>        |
| 2653               | <a href="#">CROMER KNOLL GP</a> |
| 2653               | <a href="#">RØDBY FM</a>        |

### Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

| Dokument navn                                   | Dokument format | Dokument størrelse [KB] |
|-------------------------------------------------|-----------------|-------------------------|
| <a href="#">280_01_WDSS_General_Information</a> | pdf             | 0.28                    |





Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

| Dokument navn                                | Dokument format | Dokument størrelse [KB] |
|----------------------------------------------|-----------------|-------------------------|
| <a href="#">280 2 8 10 Completionlog</a>     | pdf             | 2.20                    |
| <a href="#">280 2 8 10 Completion report</a> | pdf             | 21.25                   |

Borestrengtester (DST)

| Test nummer | Fra dybde MD [m] | Til dybde MD [m] | Reduksjonsven til størrelse [mm] |
|-------------|------------------|------------------|----------------------------------|
| 1.0         | 2536             | 2547             | 3.2                              |
| 2.0         | 2493             | 2509             | 9.5                              |
| 3.0         | 2480             | 2486             | 15.9                             |

| Test nummer | Endelig avstengningstrykk [MPa] | Endelig strømningstrykk [MPa] | Bunnhullstrykk [MPa] | Borehullstemperatur [°C] |
|-------------|---------------------------------|-------------------------------|----------------------|--------------------------|
| 1.0         |                                 |                               |                      |                          |
| 2.0         |                                 |                               |                      |                          |
| 3.0         |                                 |                               |                      |                          |

| Test nummer | Olje produksjon [Sm3/dag] | Gass produksjon [Sm3/dag] | Oljetetthet [g/cm3] | Gasstyngde rel. luft | GOR [m3/m3] |
|-------------|---------------------------|---------------------------|---------------------|----------------------|-------------|
| 1.0         | 49                        | 6760                      | 0.840               | 0.674                | 775         |
| 2.0         | 552                       | 78155                     | 0.840               | 0.653                | 793         |
| 3.0         | 1017                      | 165937                    | 0.840               | 0.660                | 910         |

Logger

| Type logg     | Topp dyp for logg [m] | Bunn dyp for logg [m] |
|---------------|-----------------------|-----------------------|
| CBL GR TT     | 100                   | 356                   |
| CBL TT        | 2285                  | 2495                  |
| CBL VDL CCL   | 2285                  | 2489                  |
| CBL VDL GR TT | 1185                  | 2556                  |
| CNFD GR CAL   | 2315                  | 2621                  |





|                    |      |      |
|--------------------|------|------|
| DIP                | 2315 | 2621 |
| DLL MSFL GR SP CAL | 2315 | 2621 |
| ISF SON RIL SP GR  | 368  | 1287 |
| ISF SON SP GR      | 1280 | 2619 |
| ISF SON SP GR      | 2425 | 2680 |
| SON VDL GR         | 2315 | 2620 |
| TEMP               | 2350 | 2560 |
| TEMP               | 2350 | 2560 |
| TEMP               | 2350 | 2650 |
| TEMP               | 2350 | 2621 |
| TEMP               | 2350 | 2621 |
| TEMP               | 2350 | 2621 |

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                         | 174.0                 | 36                          | 174.0                | 0.00                            | LOT                 |
| SURF.COND.    | 20                         | 368.0                 | 26                          | 375.0                | 0.00                            | LOT                 |
| INTERM.       | 13 3/8                     | 1280.0                | 17 1/2                      | 1286.0               | 0.00                            | LOT                 |
| INTERM.       | 9 5/8                      | 2602.0                | 12 1/4                      | 2682.0               | 0.00                            | LOT                 |

Boreslam

| Dybde MD [m] | Egenvekt, slam<br>[g/cm3] | Viskositet, slam<br>[mPa.s] | Flytegrense [Pa] | Type slam   | Dato, måling |
|--------------|---------------------------|-----------------------------|------------------|-------------|--------------|
| 0            | 1.86                      |                             |                  | water-based |              |
| 159          | 1.04                      |                             |                  | spud-mud    |              |
| 375          | 1.25                      |                             |                  | spud-mud    |              |
| 1286         | 1.24                      |                             |                  | spud-mud    |              |
| 1660         | 1.79                      |                             |                  | water-based |              |
| 2477         | 1.89                      |                             |                  | water-based |              |