

**General information**

|                              |                                            |
|------------------------------|--------------------------------------------|
| Wellbore name                | 16/1-2                                     |
| Type                         | EXPLORATION                                |
| Purpose                      | APPRAISAL                                  |
| Status                       | P&A                                        |
| Factmaps in new window       | <a href="#">link to map</a>                |
| Main area                    | NORTH SEA                                  |
| Field                        | <a href="#">IVAR AASEN</a>                 |
| Discovery                    | <a href="#">16/1-9 Ivar Aasen</a>          |
| Well name                    | 16/1-2                                     |
| Seismic location             | CS 75-30-shot point 2658                   |
| Production licence           | <a href="#">001</a>                        |
| Drilling operator            | Esso Exploration and Production Norway A/S |
| Drill permit                 | 160-L                                      |
| Drilling facility            | <a href="#">ROSS RIG (1)</a>               |
| Drilling days                | 35                                         |
| Entered date                 | 04.07.1976                                 |
| Completed date               | 07.08.1976                                 |
| Release date                 | 07.08.1978                                 |
| Publication date             | 10.01.2010                                 |
| Purpose - planned            | APPRAISAL                                  |
| Reentry                      | NO                                         |
| Content                      | OIL                                        |
| Discovery wellbore           | NO                                         |
| 1st level with HC, age       | LATE TRIASSIC                              |
| 1st level with HC, formation | SKAGERRAK FM                               |
| Kelly bushing elevation [m]  | 25.0                                       |
| Water depth [m]              | 113.0                                      |
| Total depth (MD) [m RKB]     | 2919.0                                     |
| Bottom hole temperature [°C] | 101                                        |
| Oldest penetrated age        | PRE-DEVONIAN                               |
| Oldest penetrated formation  | BASEMENT                                   |
| Geodetic datum               | ED50                                       |
| NS degrees                   | 58° 56' 9.22" N                            |
| EW degrees                   | 2° 13' 20.06" E                            |
| NS UTM [m]                   | 6533324.63                                 |
| EW UTM [m]                   | 455231.21                                  |
| UTM zone                     | 31                                         |
| NPDID wellbore               | 332                                        |



## Wellbore history

### General

Well 16/1-2 is located on the eastern side of the Gudrun Terrace, towards the Utsira High in the North Sea. The well was designed to test all potential reservoirs through the Permian on a closure on a large, rotated fault-block. Primary objectives were Jurassic sandstones and secondary objectives were Paleocene sandstones.

### Operations and results

Wildcat well 16/1-2 was spudded with the semi-submersible installation Ross Rig on 4 July 1976 and drilled to TD at 2919 m in granite basement. Loss of circulation in high-porosity Zechstein carbonates was the only significant problem encountered during the drilling of 16/1-2. Initial drilling from the sea floor to 1286 meters was with sea water and gel. Below this depth a fresh water and lignosulphonate mud system was used.

The well penetrated several sands in the Tertiary including the Utsira, Skade, and Grid formations. The Heimdal Formation was encountered at 2098 m with a 10 m zone of strong oil shows. The zone was however judged by log analysis to be water-productive and the shows not of sufficient quality to warrant testing. Triassic sandstones were originally interpreted to be water-filled. Later reinterpretation have confirmed the presence of oil in the Triassic interval. There were no shows from either the Zechstein or the Rotliegendes sandstone.

No cores were cut and no wire line fluid samples were taken.

The well was permanently abandoned on 7 August 1976 as a dry well with shows.

### Testing

No drill stem test was performed.

## Cuttings at the Norwegian Offshore Directorate

| Cutting sample, top depth [m] | Cutting samples, bottom depth [m] |
|-------------------------------|-----------------------------------|
| 340.00                        | 2915.00                           |

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

## Palynological slides at the Norwegian Offshore Directorate

| Sample depth | Depth unit | Sample type | Laboratory |
|--------------|------------|-------------|------------|
| 710.0        | [m]        | DC          | OD         |
| 720.0        | [m]        | DC          | OD         |
| 730.0        | [m]        | DC          | OD         |
| 740.0        | [m]        | DC          | OD         |



|            |    |    |
|------------|----|----|
| 750.0 [m]  | DC | OD |
| 760.0 [m]  | DC | OD |
| 770.0 [m]  | DC | OD |
| 780.0 [m]  | DC | OD |
| 790.0 [m]  | DC | OD |
| 800.0 [m]  | DC | OD |
| 810.0 [m]  | DC | OD |
| 820.0 [m]  | DC | OD |
| 830.0 [m]  | DC | OD |
| 840.0 [m]  | DC | OD |
| 850.0 [m]  | DC | OD |
| 870.0 [m]  | DC | OD |
| 990.0 [m]  | DC |    |
| 1020.0 [m] | DC |    |
| 1050.0 [m] | DC |    |
| 1080.0 [m] | DC |    |
| 1110.0 [m] | DC |    |
| 1120.0 [m] | DC |    |
| 1140.0 [m] | DC |    |
| 1170.0 [m] | DC |    |
| 1200.0 [m] | DC |    |
| 1230.0 [m] | DC |    |
| 1260.0 [m] | DC |    |
| 1290.0 [m] | DC |    |
| 1310.0 [m] | DC |    |
| 1320.0 [m] | DC |    |
| 1350.0 [m] | DC |    |
| 1380.0 [m] | DC |    |
| 1412.0 [m] | DC |    |
| 1424.0 [m] | DC |    |
| 1442.0 [m] | DC |    |
| 1472.0 [m] | DC |    |
| 1502.0 [m] | DC |    |
| 1532.0 [m] | DC |    |
| 1562.0 [m] | DC |    |
| 1574.0 [m] | DC |    |
| 1592.0 [m] | DC |    |
| 1622.0 [m] | DC |    |
| 1652.0 [m] | DC |    |
| 1658.0 [m] | DC |    |



|            |     |  |
|------------|-----|--|
| 1682.0 [m] | DC  |  |
| 1712.0 [m] | DC  |  |
| 1742.0 [m] | DC  |  |
| 1754.0 [m] | DC  |  |
| 1772.0 [m] | DC  |  |
| 1802.0 [m] | DC  |  |
| 1802.0 [m] | DC  |  |
| 1832.0 [m] | DC  |  |
| 1838.0 [m] | DC  |  |
| 1844.0 [m] | DC  |  |
| 1850.0 [m] | DC  |  |
| 1856.0 [m] | DC  |  |
| 1862.0 [m] | DC  |  |
| 1892.0 [m] | DC  |  |
| 1916.0 [m] | DC  |  |
| 1922.0 [m] | DC  |  |
| 1934.0 [m] | DC  |  |
| 1952.0 [m] | DC  |  |
| 1964.0 [m] | DC  |  |
| 1982.0 [m] | DC  |  |
| 1994.0 [m] | DC  |  |
| 2012.0 [m] | DC  |  |
| 2018.0 [m] | DC  |  |
| 2026.0 [m] | DC  |  |
| 2042.0 [m] | DC  |  |
| 2048.0 [m] | DC  |  |
| 2054.0 [m] | DC  |  |
| 2060.0 [m] | DC  |  |
| 2060.0 [m] | DC  |  |
| 2072.0 [m] | DC  |  |
| 2075.0 [m] | SWC |  |
| 2084.0 [m] | DC  |  |
| 2096.0 [m] | SWC |  |
| 2102.0 [m] | SWC |  |
| 2102.0 [m] | DC  |  |
| 2107.0 [m] | SWC |  |
| 2120.0 [m] | DC  |  |
| 2132.0 [m] | DC  |  |
| 2150.0 [m] | DC  |  |
| 2162.0 [m] | DC  |  |



|            |     |     |
|------------|-----|-----|
| 2174.0 [m] | DC  |     |
| 2192.0 [m] | DC  |     |
| 2198.0 [m] | DC  |     |
| 2221.0 [m] | SWC |     |
| 2222.0 [m] | DC  |     |
| 2228.0 [m] | DC  |     |
| 2234.0 [m] | DC  |     |
| 2237.0 [m] | SWC |     |
| 2240.0 [m] | DC  |     |
| 2240.0 [m] | DC  |     |
| 2246.0 [m] | DC  |     |
| 2252.0 [m] | DC  |     |
| 2258.0 [m] | DC  |     |
| 2270.5 [m] | SWC |     |
| 2282.0 [m] | DC  |     |
| 2286.5 [m] | SWC |     |
| 2296.0 [m] | SWC |     |
| 2297.0 [m] | DC  |     |
| 2312.0 [m] | DC  |     |
| 2327.0 [m] | DC  |     |
| 2339.0 [m] | DC  |     |
| 2352.5 [m] | SWC |     |
| 2357.0 [m] | DC  |     |
| 2366.0 [m] | DC  |     |
| 2384.5 [m] | SWC |     |
| 2387.0 [m] | DC  |     |
| 2396.0 [m] | DC  |     |
| 2414.0 [m] | DC  | APT |
| 2417.0 [m] | DC  |     |
| 2420.0 [m] | DC  |     |
| 2423.0 [m] | DC  |     |
| 2423.5 [m] | SWC |     |
| 2426.0 [m] | DC  |     |
| 2432.0 [m] | DC  | APT |
| 2441.0 [m] | DC  |     |
| 2444.0 [m] | DC  |     |
| 2446.0 [m] | SWC |     |
| 2447.0 [m] | DC  | APT |
| 2449.0 [m] | SWC |     |
| 2456.0 [m] | SWC | APT |



|            |     |     |
|------------|-----|-----|
| 2456.0 [m] | DC  |     |
| 2459.0 [m] | DC  |     |
| 2462.0 [m] | SWC |     |
| 2462.0 [m] | DC  | APT |
| 2470.0 [m] | SWC |     |
| 2471.0 [m] | DC  |     |
| 2480.0 [m] | DC  |     |
| 2483.0 [m] | DC  |     |
| 2485.0 [m] | SWC |     |
| 2491.5 [m] | SWC |     |
| 2495.0 [m] | SWC |     |
| 2503.0 [m] | SWC |     |
| 2507.0 [m] | DC  |     |
| 2510.0 [m] | DC  |     |
| 2514.0 [m] | SWC |     |
| 2522.0 [m] | DC  |     |
| 2540.0 [m] | DC  |     |
| 2555.0 [m] | DC  |     |
| 2562.5 [m] | SWC |     |
| 2573.0 [m] | DC  |     |
| 2582.0 [m] | DC  |     |
| 2603.0 [m] | DC  |     |
| 2615.0 [m] | DC  |     |
| 2627.0 [m] | DC  |     |
| 2633.0 [m] | DC  |     |
| 2642.0 [m] | DC  |     |
| 2649.0 [m] | SWC |     |
| 2660.0 [m] | DC  |     |
| 2670.0 [m] | DC  |     |
| 2672.0 [m] | DC  |     |
| 2684.0 [m] | DC  |     |
| 2690.0 [m] | DC  |     |
| 2693.5 [m] | SWC |     |
| 2702.0 [m] | DC  |     |
| 2702.5 [m] | SWC |     |
| 2705.0 [m] | DC  |     |
| 2708.0 [m] | DC  |     |
| 2714.0 [m] | DC  |     |
| 2717.0 [m] | SWC |     |
| 2718.0 [m] | SWC |     |



|            |     |  |
|------------|-----|--|
| 2719.0 [m] | SWC |  |
| 2722.0 [m] | SWC |  |
| 2723.0 [m] | SWC |  |
| 2726.0 [m] | SWC |  |
| 2732.0 [m] | SWC |  |
| 2733.0 [m] | SWC |  |
| 2735.0 [m] | SWC |  |
| 2744.0 [m] | SWC |  |
| 2749.0 [m] | SWC |  |
| 2752.0 [m] | SWC |  |
| 2753.0 [m] | SWC |  |
| 2756.0 [m] | SWC |  |
| 2772.0 [m] | SWC |  |
| 2775.5 [m] | SWC |  |
| 2782.0 [m] | SWC |  |
| 2787.5 [m] | SWC |  |
| 2791.5 [m] | SWC |  |
| 2812.0 [m] | SWC |  |
| 2817.0 [m] | SWC |  |
| 2832.0 [m] | SWC |  |
| 2850.0 [m] | SWC |  |
| 2880.0 [m] | SWC |  |
| 2900.0 [m] | SWC |  |

**Lithostratigraphy**

| Top depth<br>[mMD RKB] | Lithostrat. unit               |
|------------------------|--------------------------------|
| 138                    | <a href="#">NORDLAND GP</a>    |
| 740                    | <a href="#">UTSIRA FM</a>      |
| 820                    | <a href="#">NO FORMAL NAME</a> |
| 930                    | <a href="#">HORDALAND GP</a>   |
| 930                    | <a href="#">SKADE FM</a>       |
| 1087                   | <a href="#">NO FORMAL NAME</a> |
| 1134                   | <a href="#">SKADE FM</a>       |
| 1222                   | <a href="#">NO FORMAL NAME</a> |
| 1660                   | <a href="#">GRID FM</a>        |
| 1730                   | <a href="#">NO FORMAL NAME</a> |
| 1973                   | <a href="#">ROGALAND GP</a>    |
| 1973                   | <a href="#">BALDER FM</a>      |



|      |                                     |
|------|-------------------------------------|
| 2018 | <a href="#">SELE FM</a>             |
| 2060 | <a href="#">LISTA FM</a>            |
| 2098 | <a href="#">HEIMDAL FM</a>          |
| 2138 | <a href="#">LISTA FM</a>            |
| 2192 | <a href="#">SHETLAND GP</a>         |
| 2236 | <a href="#">CROMER KNOLL GP</a>     |
| 2242 | <a href="#">VIKING GP</a>           |
| 2242 | <a href="#">INTRA HEATHER FM SS</a> |
| 2283 | <a href="#">HEATHER FM</a>          |
| 2424 | <a href="#">NO GROUP DEFINED</a>    |
| 2424 | <a href="#">SKAGERRAK FM</a>        |
| 2620 | <a href="#">SMITH BANK FM</a>       |
| 2713 | <a href="#">ZECHSTEIN GP</a>        |
| 2713 | <a href="#">UNDIFFERENTIATED</a>    |
| 2800 | <a href="#">KUPFERSCHIEFER FM</a>   |
| 2808 | <a href="#">ROTLIEGEND GP</a>       |
| 2912 | <a href="#">BASEMENT</a>            |

**Composite logs**

| Document name       | Document format | Document size [MB] |
|---------------------|-----------------|--------------------|
| <a href="#">332</a> | pdf             | 0.39               |

**Geochemical information**

| Document name         | Document format | Document size [MB] |
|-----------------------|-----------------|--------------------|
| <a href="#">332_1</a> | pdf             | 1.47               |

**Documents - older Norwegian Offshore Directorate WDSS reports and other related documents**

| Document name                                   | Document format | Document size [MB] |
|-------------------------------------------------|-----------------|--------------------|
| <a href="#">332_01_WDSS_General_Information</a> | pdf             | 0.27               |



**Documents - reported by the production licence (period for duty of secrecy expired)**

| Document name                                   | Document format | Document size [MB] |
|-------------------------------------------------|-----------------|--------------------|
| <a href="#">332 01 16 1 2 Completion Log</a>    | pdf             | 1.65               |
| <a href="#">332 01 16 1 2 Completion report</a> | pdf             | 3.26               |

**Logs**

| Log type       | Log top depth [m] | Log bottom depth [m] |
|----------------|-------------------|----------------------|
| CBL            | 1714              | 2678                 |
| CST            | 200               | 1193                 |
| CST 2-3        | 0                 | 0                    |
| FDC CNL        | 2662              | 2921                 |
| HDT            | 1800              | 2705                 |
| HDT            | 2662              | 2921                 |
| ISF SON GR     | 1264              | 2485                 |
| ISF SON GR     | 2050              | 2713                 |
| ISF SON GR     | 2622              | 2921                 |
| ISF SON GR CBL | 324               | 1286                 |
| VEOCITY        | 0                 | 0                    |

**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                  | 325.0            | 26                | 340.0          | 0.00                     | LOT                 |
| INTERM.     | 13 3/8              | 1264.0           | 17 1/2            | 1285.0         | 0.00                     | LOT                 |
| INTERM.     | 9 5/8               | 2656.0           | 12 1/4            | 2732.0         | 0.00                     | LOT                 |
| OPEN HOLE   |                     | 2917.0           | 8 1/2             | 2917.0         | 0.00                     | LOT                 |

**Drilling mud**

| Depth MD [m] | Mud weight [g/cm3] | Visc. [mPa.s] | Yield point [Pa] | Mud type   | Date measured |
|--------------|--------------------|---------------|------------------|------------|---------------|
| 340          | 1.10               |               |                  | waterbased |               |
| 580          | 1.02               |               |                  | waterbased |               |
| 1285         | 1.10               |               |                  | waterbased |               |





|      |      |  |  |            |  |
|------|------|--|--|------------|--|
| 2170 | 1.10 |  |  | waterbased |  |
| 2731 | 1.11 |  |  | waterbased |  |
| 2918 | 1.07 |  |  | waterbased |  |

**Thin sections at the Norwegian Offshore Directorate**

| Depth   | Unit |
|---------|------|
| 2711.14 | [m ] |
| 2426.29 | [m ] |
| 2429.32 | [m ] |
| 2432.35 | [m ] |
| 2435.38 | [m ] |
| 2438.41 | [m ] |
| 2441.44 | [m ] |
| 2444.47 | [m ] |
| 2447.50 | [m ] |
| 2450.53 | [m ] |
| 2453.56 | [m ] |
| 2456.59 | [m ] |
| 2459.62 | [m ] |
| 2462.65 | [m ] |
| 2465.68 | [m ] |
| 2477.80 | [m ] |
| 2501.04 | [m ] |
| 2522.25 | [m ] |
| 2543.46 | [m ] |
| 2564.67 | [m ] |
| 2585.88 | [m ] |
| 2603.06 | [m ] |
| 2624.27 | [m ] |
| 2645.48 | [m ] |
| 2666.69 | [m ] |
| 2690.93 | [m ] |