

|                   |                                      |               |                           |
|-------------------|--------------------------------------|---------------|---------------------------|
| Well no :         | 7324/10-1                            | Operator :    | STATOIL                   |
| Coordinates :     | 73° 09' 49.45" N<br>24° 18' 47.62" E | UTM coord. :  | 812091838 N<br>41316208 E |
| Licence no :      | 162                                  | Permit no :   | 609                       |
| Rig :             | ROSS RIG                             | Rig type :    | SEMI-SUB.                 |
| Contractor :      | TRANSNOR RIG AS                      |               |                           |
| Bottom hole temp: | 96 °C                                | Elev. KB :    | 23 M                      |
| Spud. date :      | 89.06.03                             | Water depth : | 407 M                     |
| Compl. date :     | 89.08.19                             | Total depth : | 2919 M                    |
| Spud. class :     | WILDCAT                              | Form. at TD   | E.TRIASSIC                |
| Compl. class :    | P&A. GAS SHOWS                       | Prod.form. :  |                           |
| Seisloca :        | GLR 3-87-19B SP. 3290                |               |                           |

## LICENSEES

|           |                                  |
|-----------|----------------------------------|
| 20,000000 | NORSK HYDRO PRODUKSJON A.S       |
| 10,000000 | SAGA PETROLEUM A.S.              |
| 10,000000 | A/S NORSKE SHELL                 |
| 50,000000 | DEN NORSKE STATS OLJESELSKAP A.S |
| 10,000000 | NORSKE FINA A/S                  |

## CASING AND LEAK-OFF TESTS

| Type      | Casing diam. | Depth below KB | Hole diam. | Hole depth below KB | Lot mud eqv. g/cm3 |
|-----------|--------------|----------------|------------|---------------------|--------------------|
| CONDUCTOR | 30           | 494,0          | 36         | 497,0               |                    |
| INTERM.   | 20           | 554,0          | 26         | 559,0               | 1,35               |
| INTERM.   | 13 3/8       | 1551,0         | 17 1/2     | 1570,0              | 1,59               |
| INTERM.   | 9 5/8        | 2216,0         | 12 1/4     | 2235,0              | 1,60               |
| LINER     | 7            | 2626,0         | 8 1/2      | 2627,0              | 1,71               |
| OPEN HOLE |              |                | 6          | 2919,0              |                    |

## CONVENTIONAL CORES

| Core no. | Intervals cored meters | Recovery |      | Series |
|----------|------------------------|----------|------|--------|
|          |                        | M        | %    |        |
| 1        | 1411,0                 | - 1414,7 | 3,7  | 100,0  |
| 2        | 1659,0                 | - 1667,5 | 8,5  | 100,0  |
| 3        | 1777,0                 | - 1782,6 | 5,6  | 100,0  |
| 4        | 2640,2                 | - 2640,5 | 0,3  | 100,0  |
| 5        | 2640,5                 | - 2659,1 | 18,6 | 100,0  |

## MUD

| Depth    | Mud weight | Visc. | Mud type    |
|----------|------------|-------|-------------|
| 559,000  | 1,18       | 10,0  | WATER BASED |
| 1500,000 | 1,32       | 16,0  | WATER BASED |
| 1834,000 | 1,20       | 17,0  | WATER BASED |
| 1900,000 | 1,32       | 13,0  | WATER BASED |

| Depth    | Mud weight | Visc. | Mud type    |
|----------|------------|-------|-------------|
| 2022,000 | 1,20       | 17,0  | WATER BASED |
| 2148,000 | 1,25       | 22,0  | WATER BASED |
| 2235,000 | 1,32       | 22,0  | WATER BASED |
| 2238,000 | 1,44       | 19,0  | WATER BASED |
| 2269,000 | 1,47       | 20,0  | WATER BASED |
| 2296,000 | 1,44       | 20,0  | WATER BASED |
| 2423,000 | 1,35       | 22,0  | WATER BASED |
| 2627,000 | 1,53       | 14,0  | WATER BASED |
| 2919,000 | 1,35       | 18,0  | WATER BASED |

## DRILL BIT CUTTINGS AND WET SAMPLES

| Sample type | Interval below KB | Number of samples |
|-------------|-------------------|-------------------|
| WET SAMPLES | 560 - 2917        | 390               |
| CUTTING     | 560 - 2919        | 480               |

## SHALLOW GAS

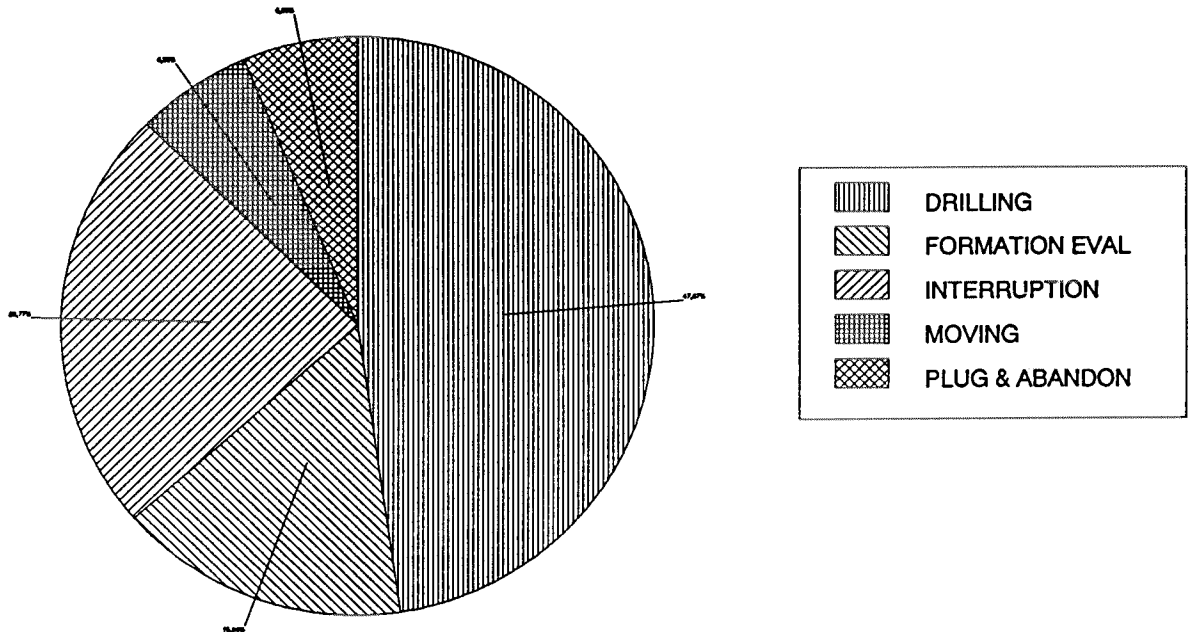
| Interval below KB | Remarks |
|-------------------|---------|
|-------------------|---------|

## AVAILABLE LOGS

| Log type       | Intervals       | 1/200 | 1/500 | Div. |
|----------------|-----------------|-------|-------|------|
| AMS            | 1290,0 - 2205,0 |       | X     |      |
| AMS            | 2325,0 - 2607,0 | X     |       |      |
| AMS            | 2627,0 - 2921,0 |       | X     |      |
| CBL VDL GR     | 475,0 - 1545,0  | X     |       |      |
| CBL VDL GR     | 1400,0 - 2215,0 | X     |       |      |
| CBL VDL GR     | 2051,0 - 2575,0 | X     |       |      |
| CDM AP / SHDT  | 560,0 - 1562,0  | X     | X     |      |
| CDM AP / SHDT  | 2218,0 - 2617,0 | X     | X     |      |
| CDM AP / SHDT  | 2630,0 - 2920,0 | X     | X     |      |
| SHDT           | 554,0 - 1563,0  | X     |       |      |
| SHDT CALIPERS  | 1550,0 - 2207,0 | X     |       |      |
| SHDT AMS       | 1550,0 - 2207,0 | X     |       |      |
| SHDT AMS       | 2215,0 - 2618,0 | X     |       |      |
| SHDL           | 2627,0 - 2921,0 |       |       |      |
| DIL LSS GR     | 495,0 - 556,0   | X     | X     |      |
| DIL LSS GR     | 554,0 - 1562,0  | X     | X     |      |
| DIL LSS GR     | 1551,0 - 2212,0 | X     | X     |      |
| DIL LSS GR CAL | 2216,0 - 2496,0 | X     | X     |      |
| DIL LSS GR CAL | 2450,0 - 2626,0 | X     | X     |      |
| DIL LSS GR     | 2627,0 - 2917,0 | X     | X     |      |
| LDL CAL        | 493,0 - 557,0   | X     | X     |      |
| LDL CNL        | 554,0 - 1562,0  | X     | X     |      |

| Log type             | Intervals            | 1/200 | 1/500 | Div.   |
|----------------------|----------------------|-------|-------|--------|
| LDL CNL              | 1550,0 - 2221,0      | X     | X     |        |
| LDL CNL GR AMS       | 2215,5 - 2625,3      | X     | X     |        |
| LDL CNL NGL          | 2627,0 - 2920,0      | X     | X     |        |
| LSS VDL              | 1550,0 - 2212,0      | X     | X     |        |
| NGS PLAYBACK         | 2627,0 - 2920,0      | X     | X     |        |
| PRESS EVALUATION     | 435,0 - 2919,0       |       |       | 1:1000 |
| MWD                  | 450,0 - 2614,0       |       | X     |        |
| RFT HP               | 570,0 - 654,0        |       |       |        |
| RFT HP               | 1607,3 - 2185,9      |       |       |        |
| RFT HP               | 2516,8 - 2621,4      |       |       |        |
| MUD                  | 435,0 - 2919,0       |       | X     |        |
| VELOCITY             | 497,0 - 2910,0       |       | X     | 1:1000 |
| TWO WAY TRAVEL TIME  | 10 cm/s              |       |       | 1      |
| SYNTHETIC SEISMOGRAM | 10 cm/s              |       |       | 2      |
| V.S.P, ZERO OFFSET   | 10 cm/s      20 cm/s |       |       | 20     |

**Daily Drilling Report System (DDRS)**  
**Operations for well: 7324/10-1**



| Main operations | Minutes       | Hours          | % of total    |
|-----------------|---------------|----------------|---------------|
| DRILLING        | 56970         | 949,50         | 47,67         |
| FORMATION EVAL  | 19080         | 318,00         | 15,96         |
| INTERRUPTION    | 28410         | 473,50         | 23,77         |
| MOVING          | 7560          | 126,00         | 6,33          |
| PLUG & ABANDON  | 7500          | 125,00         | 6,28          |
| <b>Total</b>    | <b>119520</b> | <b>1992,00</b> | <b>100,00</b> |

**Operations for well: 7324/10-1****Main operation: DRILLING**

| Sub operations  | Minutes      | Hours         | % of total    |
|-----------------|--------------|---------------|---------------|
| BOP ACTIVITIES  | 3030         | 50,50         | 5,32          |
| BOP/WELLHEAD EQ | 1920         | 32,00         | 3,37          |
| CASING          | 13920        | 232,00        | 24,43         |
| CIRC/COND       | 3240         | 54,00         | 5,69          |
| DRILL           | 25980        | 433,00        | 45,60         |
| HOLE OPEN       | 630          | 10,50         | 1,11          |
| OTHER           | 60           | 1,00          | 0,11          |
| PRESS DETECTION | 90           | 1,50          | 0,16          |
| REAM            | 300          | 5,00          | 0,53          |
| SURVEY          | 450          | 7,50          | 0,79          |
| TRIP            | 7170         | 119,50        | 12,59         |
| WAIT            | 180          | 3,00          | 0,32          |
| <b>Total</b>    | <b>56970</b> | <b>949,50</b> | <b>100,00</b> |

**Main operation: FORMATION EVAL**

| Sub operations | Minutes      | Hours         | % of total    |
|----------------|--------------|---------------|---------------|
| CIRC SAMPLES   | 570          | 9,50          | 2,99          |
| CIRC/COND      | 420          | 7,00          | 2,20          |
| CORE           | 2370         | 39,50         | 12,42         |
| LOG            | 10770        | 179,50        | 56,45         |
| RFT/FIT        | 600          | 10,00         | 3,14          |
| TRIP           | 4350         | 72,50         | 22,80         |
| <b>Total</b>   | <b>19080</b> | <b>318,00</b> | <b>100,00</b> |

**Main operation: INTERRUPTION**

| Sub operations | Minutes      | Hours         | % of total    |
|----------------|--------------|---------------|---------------|
| FISH           | 510          | 8,50          | 1,80          |
| LOST CIRC      | 25800        | 430,00        | 90,81         |
| MAINTAIN/REP   | 1980         | 33,00         | 6,97          |
| OTHER          | 120          | 2,00          | 0,42          |
| <b>Total</b>   | <b>28410</b> | <b>473,50</b> | <b>100,00</b> |

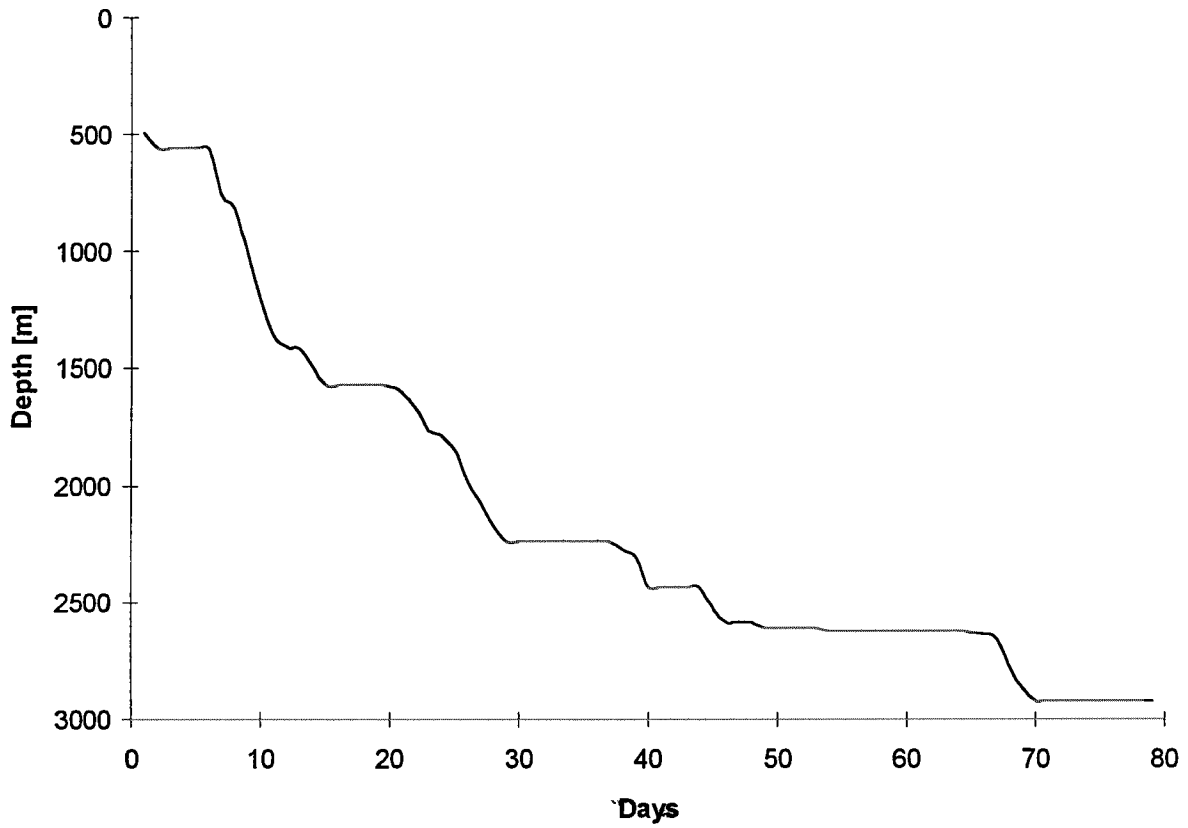
**Main operation: MOVING**

| Sub operations | Minutes     | Hours         | % of total    |
|----------------|-------------|---------------|---------------|
| ANCHOR         | 2160        | 36,00         | 28,57         |
| TRANSIT        | 5400        | 90,00         | 71,43         |
| <b>Total</b>   | <b>7560</b> | <b>126,00</b> | <b>100,00</b> |

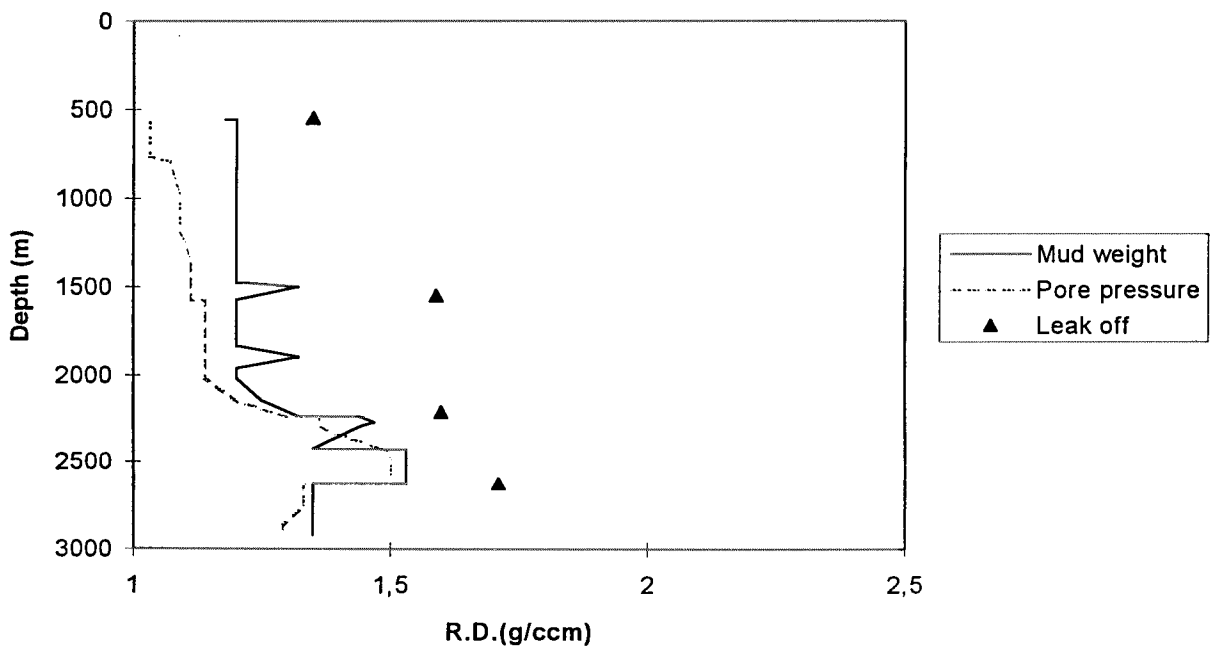
**Main operation: PLUG & ABANDON**

| Sub operations  | Minutes     | Hours         | % of total    |
|-----------------|-------------|---------------|---------------|
| CEMENT PLUG     | 660         | 11,00         | 8,80          |
| CIRC/COND       | 690         | 11,50         | 9,20          |
| CUT             | 690         | 11,50         | 9,20          |
| EQUIP RECOVERY  | 1860        | 31,00         | 24,80         |
| MECHANICAL PLUG | 570         | 9,50          | 7,60          |
| OTHER           | 150         | 2,50          | 2,00          |
| PERFORATE       | 270         | 4,50          | 3,60          |
| SQUEEZE         | 170         | 2,83          | 2,27          |
| TRIP            | 2440        | 40,67         | 32,53         |
| <b>Total</b>    | <b>7500</b> | <b>125,00</b> | <b>100,00</b> |

Depth vs time for well: 7324/10-1



Composite plot for well: 7324/10-1



# Well History 7324/10-1.

## General:

Well 7324/10-1 was planned to be drilled to a total depth of 3400 m RKB on the Alpha structure in the Maud Basin at the Bjarmeland Platform. The main objective was to test the hydrocarbon potential in a prospect at the Base Anisian level (Top Klappmyss Formation). The secondary objective was to test sandstones below the Base Smithian level (Top Havert Formation). In addition the well was to test the source rock potential in the Triassic, Base Snadd and Base Kobbe Formations. The licence decided to test the entire Triassic potential and to drill into rocks of Late Permian. Possible sandlayers at 575 - and 695 m RKB justified a shallow gas warning at these levels.

## Operations:

Wildcat well 7324/10-1 was spudded by the semi-submersible rig Ross Rig 3 June 1989, and completed 19 August 1989 at a depth of 2919 m RKB in Early Triassic rocks, the Havert Formation. TD was set approximately 500 m higher than prognosed due to lost circulation problems in the interval 1800 - 2626 m RKB. No shallow gas was encountered. A total of five cores were cut in the well, and 450 sidewall cores were attempted but only 384 was recovered. The main target at Base Anisian/Klappmyss Formation at 1767 m RKB in the prognosis, appeared to be an intra Anisian seismic marker encountered at 1822 m RKB. At this level there was no reservoir developed, neither was there any reservoir developed at the new Anisian seismic marker on 2272 m RKB. The secondary objective at top Havert Formation encountered at 2512 m RKB had a limited reservoir developed. Organic rich shales were encountered in: Snadd Kobbe and Klappmyss Formation respectively. The well was permanently plugged and abandoned as a dry well.

## Testing:

No DST tests were performed in this well.

# Geological Tops.

## Well: 7324/10-1.

|                      | Depth m (RKB). |
|----------------------|----------------|
| Nordland Group       | 431.0          |
| Nordvestbanken Group | 480.0          |
| Kolmule Fm           | 480.0          |
| Knurr Fm             | 553.0          |
| Teistengrunnen Group | 561.0          |
| Fuglen Fm            | 561.0          |
| Realgrunnen Group    | 569.0          |
| Stø Fm               | 569.0          |
| Fruholmen Fm         | 577.0          |
| Ingøydjupet Group    | 606.0          |
| Snadd Fm             | 606.0          |
| Kobbe Fm             | 1607.0         |
| Klappmyss Fm         | 2272.0         |
| Havert Fm            | 2512.0         |
| T.D.                 | 2919.0         |