# Formation Pressures, 6407/2-3

| DEPTH (mMSL TVD) (true vertical depth) | DEPTH (mRKB) (Measured depth) | HYDROSTATIC MUD PRESSURE Before (psia) HP gauge | HYDROSTATIC MUD PRESSURE After (psia) HP gauge | FORMATION PRESSURES TEMPERATURE CORRECTED (psia) HP gauge | FORMATION PRESSURES TEMPERATURE CORRECTED (bar) HP gauge | REMARKS |
|---|---|---|---|---|---|---|
| Run 4A | | | | | | |
| 2400.6 | 2428.0 | 4436.1 | 4435.6 | 3623.5 | 249.85 | |
| 2407.5 | 2435.0 | 4448.9 | 4448.2 | 3625.5 | 249.98 | |
| 2416.5 | 2444.0 | 4465.0 | 4464.3 | 3628.3 | 250.18 | |
| 2427.5 | 2455.0 | 4483.9 | - | - | - | Toolfailure |
| Run 4B | | Strain-gauge | | Strain gauge | | |
| | | (psig) | (psig) | (psig) | (bar) | |
| 2400.6 | 2428.0 | 4457 | 4402 | 3643.0 | 253.22 | Segregated sample |
| Run 4C | | | | | | |
| 2400.6 | 2428.0 | 4458 | 4375 | 3643.0 | 253.22 | Segregated sample |

Fig. 5.4 : Formation Pressures

| Date 5/87 | Auth. CS | Appr. BR |
|---|---|---|
| Draw by AMJo | Ref EPF | |

# Formation Pressures, 6407/2-3

| DEPTH (mMSL TVD) (true vertical depth) | DEPTH (mRKB) Measured depth | HYDROSTATIC MUD PRESSURE Before (psia) HP gauge | HYDROSTATIC MUD PRESSURE After (psia) HP gauge | FORMATION RESSURE TEMPERATURE CORRECTED (psia) HP gauge | FORMATION RESSURE TEMPERATURE CORRECTED (bar) HP gauge | REMARKS |
|---|---|---|---|---|---|---|
| Run 4D | | | | | | |
| 2400.6 | 2428.0 | 4442.7 | 4441.6 | 3627.7 | 250.13 | |
| 2407.5 | 2435.0 | 4453.8 | 4453.2 | 3628.7 | 250.20 | |
| 2416.5 | 2444.0 | 4469.4 | 4469.2 | 3630.9 | 250.36 | |
| 2427.5 | 2455.0 | 4488.6 | 4488.9 | 3634.3 | 250.59 | |
| 2440.3 | 2468.0 | 4513.1 | 4513.5 | 3639.6 | 250.96 | |
| 2450.3 | 2478.0 | 4531.4 | 4531.2 | 3642.6 | 251.16 | |
| 2454.7 | 2482.0 | 4537.2 | 4536.7 | 3654.2 | 251.96 | Super charged |
| 2454.6 | 2481.9 | 4537.5 | 4537.2 | 3646.6 | 251.44 | Super charged |
| 2455.7 | 2483.4 | 4539.3 | 4539.3 | 3643.4 | 251.22 | |
| 2463.2 | 2491.0 | 4552.8 | 4532.9 | 3645.0 | 251.33 | |
| 2481.7 | 2510.0 | 4588.1 | 4588.2 | 3654.9 | 252.01 | |
| 2484.5 | 2512.5 | 4592.5 | 4592.6 | 3652.4 | 251.83 | |
| 2481.5 | 2509.5 | 4587.1 | 4586.8 | 3650.6 | 251.71 | |
| 2489.0 | 2517.0 | 4600.1 | 4600.2 | 3652.9 | 251.19 | |
| 2492.6 | 2520.6 | 4606.6 | 4607.1 | 3653.8 | 251.93 | |
| 2497.5 | 2525.5 | 4615.6 | 4616.2 | 3658.2 | 252.24 | |
| 2505.4 | 2533.5 | 4630.5 | 4630.2 | 3669.6 | 253.02 | |
| 2524.2 | 2552.4 | 4665.3 | 4664.6 | 3697.6 | 254.95 | |
| 2540.4 | 2568.9 | 4694.3 | 4694.3 | 3722.3 | 256.66 | |
| 2637.3 | 2666.9 | 4870.1 | - | - | - | Tight |
| 2710.2 | 2740.9 | 5001.7 | - | - | - | Tight<br>Tool stuck |
| Run 4E | | | | | | |
| 2482.0 | 2510.0 | 4572.2 | - | - | - | Bad seal |
| 2482.5 | 2510.5 | 4573.1 | 4570.3 | 3651.1 | 251.75 | Segregated sample |
| Run 4F | | | | | | |
| 2402.7 | 2430.0 | 4426.9 | 4425.3 | 3626.4 | 250.05 | Segregated sample |

Fig. 5.4 , Cont. : Formation Pressures

| Date | Auth. | Appr |
|---|---|---|
| 5/87 | CS | BR |
| Draw by AMJo | Ref EPF | |

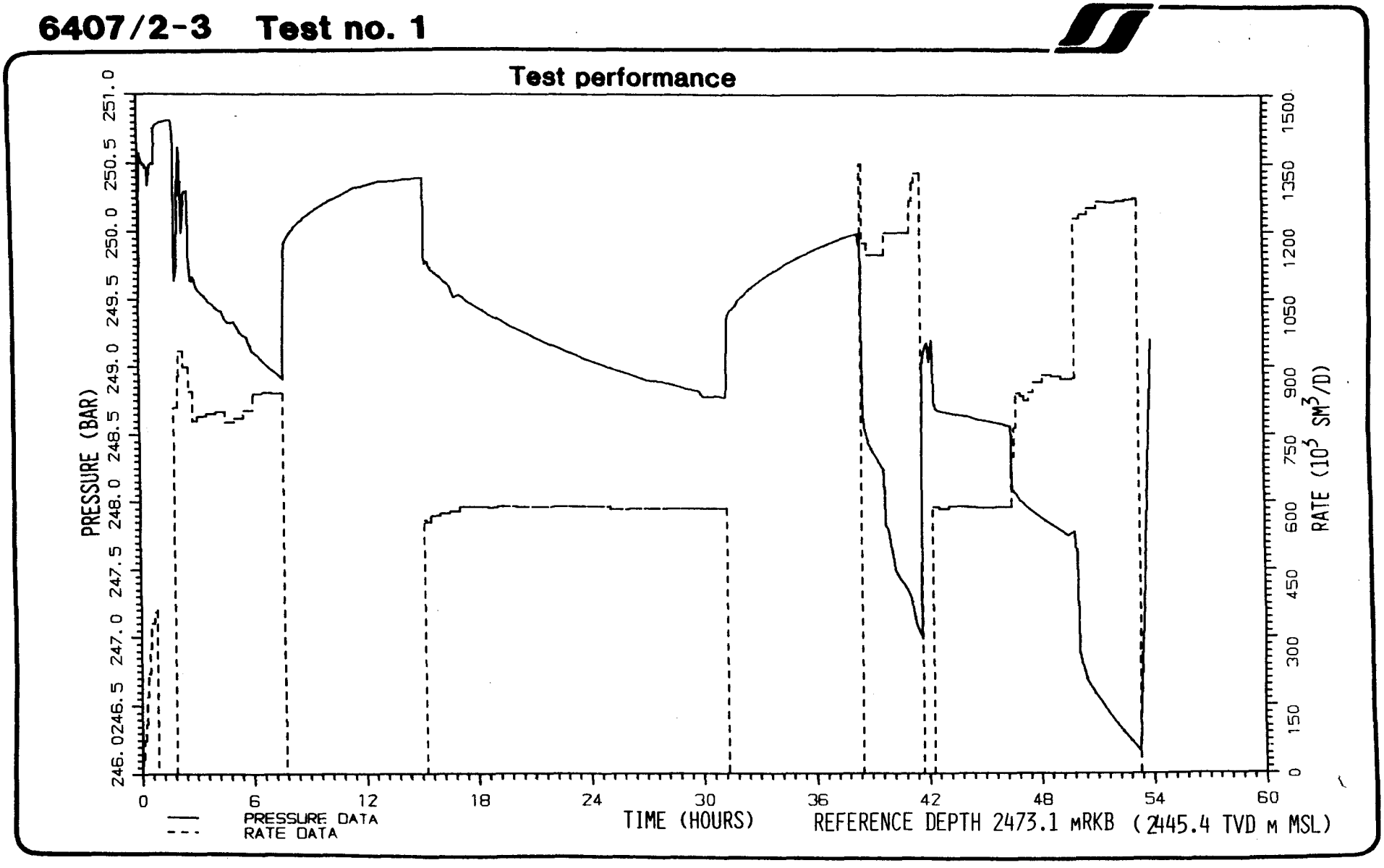


Fig 5.5
Bottomhole pressure and gas flow rate for test no 1 versus time

| Date 03/87 | Auth B&B | Appr |
|---|---|---|
| Drawn by GAF | Ref EPF | |

# 6407/2-3 Test No. 1

| Event | Date | Clocktime (hrs.min.) | Choke (mm) | Flowrate $10^3$ $Sm^3/D$ | BHP [1] (bar) | WHP (bar) | WHT (deg C) | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| Initial flow | 04.01.87 | 07:52 | 9.5 adj. | | | | | Perforated 2508.7 - 2518.2 mRKB (2480.7-2490.2 TVD mMSL) |
| | | 07:54 | 12.7 adj. | | | | | |
| | | 08:00 | | | 250.6 | 47.6 | 7.3 | |
| Shut in the well | | 08:47 | | | 250.6 | 178.4 | 17.5 | Leakage at erosion probe. |
| | | | | | | | | |
| Clean up flow | | 09:45 | 19.1 adj. | | | | | |
| | | 10:00 | | | 250.4 | 186.7 | 20.8 | |
| | | 10:33 | 20.6 adj. | | | | | |
| | | 11:00 | | | 249.6 | 177.5 | 33.5 | |
| | | 12:00 | | | 249.4 | 161.6 | 43.9 | |
| | | 13:00 | | | 249.3 | 163.7 | 45.3 | |
| | | 13:50 | 19.1 fix. | | | | | |
| | | 15:00 | | 841.0 | 249.0 | 158.4 | 49.3 | |
| Shut in the well | | 15:35 | | 840.5 | 248.9 | 158.4 | 49.1 | |
| | | | | | | | | |
| | | 20:50 | | | | | | Matre gauges set in the XN-nipple. |
| Main flow | | 23:08 | 15.9 fix. | | | | | |
| | 05.01.87 | 00:00 | | | 249.7 | 175.9 | 16.3 | |
| | | 04:00 | | 589.6 | 249.3 | 177.3 | 31.9 | |
| | | 08:00 | | 590.8 | 249.0 | 177.5 | 33.2 | |
| | | 12:00 | | 587.1 | 248.9 | 178.3 | 33.7 | |
| Shut in the well | | 15:11 | | 587.1 | 248.8 | 178.2 | 33.7 | |
| | | | | | | | | |
| Clean up multirate flow | | 22:25 | 25.4 fix. | | | | | |
| | | 23:00 | | | 248.4 | 131.9 | 30.6 | |
| | | 23:35 | 31.8 fix. | | | | | |
| | | 23:55 | 35.7 adj. | | | | | |
| | | 00:00 | | | 247.7 | 97.5 | 35.8 | |
| | 06.01.87 | 00:05 | 38.1 fix. | | | | | |
| | | 01:00 | | 1201.7 | 247.3 | 87.5 | 36.5 | |
| | | 01:05 | 50.8 adj. | | | | | |
| | | | +38.1 fix. | | | | | |
| Shut in the well | | 01:35 | | | 247.6 | 68.1 | 34.3 | |
| | | | | | | | | |
| Multirate flow | | 02:11 | 15.9 fix. | | | | | |
| | | 04:00 | | 592.8 | 248.6 | 178.6 | 32.1 | |
| | | 06:20 | 20.6 fix. | | | | | |
| | | 08:00 | | 887.2 | 247.9 | 154.6 | 41.6 | |
| | | 09:42 | 19.1 adj. | | | | | |
| | | 09:52 | 38.1 fix. | | | | | |
| | | 11:00 | | 1277.8 | 246.5 | 88.0 | 41.3 | |
| Shut in the well | | 13:09 | | 1285.5 | 246.3 | 88.0 | 40.4 | |

1) Reference depth 2473.1 mRKB
(2445.4 TVD mMSL)

Fig 5.6
Summary of the flow periods, test no 1

| Date | 5/87 | Auth | BåB | Appr | RNy |
|---|---|---|---|---|---|
| Draw by | | Ref | EPF | | |

# 6407/2-3 Test no. 1

| Time (hr.min.sec) | Pressure (bar) | |
|---|---|---|
| 07:53:00 | 249.314 | 04.01.87 |
| 07:57:00 | 250.428 | |
| 08:01:00 | 250.542 | |
| 08:07:00 | 250.512 | |
| 08:15:00 | 250.492 | |
| 08:27:00 | 250.389 | |
| 08:37:00 | 250.500 | |
| 08:45:00 | 250.495 | |
| 08:47:00 | 250.748 | |
| 08:53:00 | 250.778 | |
| 09:01:00 | 250.790 | |
| 09:11:00 | 250.799 | |
| 09:27:00 | 250.809 | |
| 09:39:00 | 250.812 | |
| 09:43:00 | 250.791 | |
| 09:45:00 | 250.684 | |
| 09:47:00 | 249.748 | |
| 09:51:00 | 249.680 | |
| 09:55:00 | 249.776 | |
| 10:03:00 | 250.619 | |
| 10:19:00 | 250.269 | |
| 10:27:00 | 250.293 | |
| 10:43:00 | 249.631 | |
| 11:07:00 | 249.561 | |
| 11:35:00 | 249.491 | |
| 12:11:00 | 249.412 | |
| 12:31:00 | 249.351 | |
| 13:01:00 | 249.327 | |
| 13:41:00 | 249.213 | |
| 14:21:00 | 249.066 | |
| 15:01:00 | 248.975 | |
| 15:31:00 | 248.919 | |
| 15:35:00 | 248.909 | |
| 15:37:00 | 249.846 | |
| 15:39:00 | 249.878 | |
| 15:43:00 | 249.917 | |
| 15:51:00 | 249.963 | |
| 15:57:00 | 249.984 | |
| 16:05:00 | 250.011 | |
| 16:21:00 | 250.055 | |
| 16:39:00 | 250.093 | |
| 16:51:00 | 250.117 | |
| 17:15:00 | 250.159 | |
| 17:47:00 | 250.204 | |
| 18:07:00 | 250.231 | |
| 18:27:00 | 250.250 | |
| 19:07:00 | 250.294 | |
| 19:47:00 | 250.322 | |

Reference depth 2473.1 mRKB
(2445.4 m MSL)

Fig 5.7
Bottomhole pressures for test no 1

| Date 05/87 | Auth BåB/RNV | Appr |
|---|---|---|
| Draw by GAF | Ref EPF | |

# 6407/2-3 Test no. 1

| Time (hr.min.sec) | Pressure (bar) | |
|---|---|---|
| 20:27:00 | 250.353 | |
| 21:07:00 | 250.363 | |
| 21:47:00 | 250.373 | |
| 22:27:00 | 250.380 | |
| 22:35:00 | 250.384 | |
| 22:59:00 | 250.400 | |
| 23:07:00 | 250.391 | |
| 23:09:00 | 249.976 | |
| 23:13:00 | 249.762 | |
| 23:21:00 | 249.776 | |
| 23:31:00 | 249.718 | |
| 23:47:00 | 249.689 | |
| 00:03:00 | 249.654 | 05.01.87 |
| 00:25:00 | 249.611 | |
| 00:37:00 | 249.563 | |
| 00:57:00 | 249.530 | |
| 01:17:00 | 249.510 | |
| 01:37:00 | 249.469 | |
| 02:17:00 | 249.414 | |
| 02:57:00 | 249.359 | |
| 03:47:00 | 249.296 | |
| 04:47:00 | 249.233 | |
| 05:47:00 | 249.170 | |
| 06:47:00 | 249.110 | |
| 07:47:00 | 249.055 | |
| 08:47:00 | 249.007 | |
| 09:47:00 | 248.959 | |
| 10:47:00 | 248.914 | |
| 11:47:00 | 248.891 | |
| 12:47:00 | 248.854 | |
| 13:47:00 | 248.820 | |
| 14:47:00 | 248.783 | |
| 15:09:00 | 248.772 | |
| 15:11:00 | 248.875 | |
| 15:13:00 | 249.324 | |
| 15:15:00 | 249.349 | |
| 15:23:00 | 249.402 | |
| 15:37:00 | 249.441 | |
| 15:51:00 | 249.488 | |
| 16:07:00 | 249.529 | |
| 16:39:00 | 249.599 | |
| 17:21:00 | 249.669 | |
| 18:31:00 | 249.770 | |
| 19:11:00 | 249.815 | |
| 19:53:00 | 249.863 | |
| 20:53:00 | 249.920 | |

Reference depth 2473.1 mRKB

(2445.4 m MSL)

Fig 5.7

Bottomhole pressures for test no 1

| | | | |
|---|---|---|---|
| Date 05/87 | Auth BaB/RNy | Appr | |
| Draw by GAF | Ref EPF | | |

# 6407/2-3 Test no. 1

| Time (hr.min.sec) | Pressure (bar) | |
|---|---|---|
| 21:53:00 | 249.973 | |
| 22:19:00 | 249.907 | |
| 22:23:00 | 249.979 | |
| 22:25:00 | 249.591 | |
| 22:27:00 | 248.805 | |
| 22:29:00 | 248.638 | |
| 22:37:00 | 248.502 | |
| 22:47:00 | 248.429 | |
| 23:03:00 | 248.359 | |
| 23:19:00 | 248.298 | |
| 23:29:00 | 248.257 | |
| 23:35:00 | 248.195 | |
| 23:45:00 | 247.807 | |
| 23:57:00 | 247.686 | |
| 00:17:00 | 247.465 | 06.01.87 |
| 00:37:00 | 247.396 | |
| 00:57:00 | 247.314 | |
| 01:35:00 | 248.097 | |
| 01:37:00 | 249.000 | |
| 01:39:00 | 249.048 | |
| 01:45:00 | 249.123 | |
| 01:49:00 | 249.155 | |
| 01:53:00 | 249.183 | |
| 02:01:00 | 249.040 | |
| 02:07:00 | 249.177 | |
| 02:09:00 | 249.200 | |
| 02:11:00 | 249.013 | |
| 02:13:00 | 248.743 | |
| 02:15:00 | 248.718 | |
| 02:23:00 | 248.683 | |
| 02:39:00 | 248.671 | |
| 03:19:00 | 248.651 | |
| 03:59:00 | 248.637 | |
| 04:39:00 | 248.610 | |
| 05:19:00 | 248.592 | |
| 05:59:00 | 248.573 | |
| 06:21:00 | 248.317 | |
| 07:19:00 | 247.948 | |
| 08:19:00 | 247.846 | |
| 09:19:00 | 247.757 | |
| 09:45:00 | 247.670 | |
| 10:19:00 | 246.685 | |
| 11:19:00 | 246.481 | |
| 12:19:00 | 246.299 | |
| 13:07:00 | 246.169 | |
| 13:09:00 | 246.369 | |
| 13:11:00 | 247.732 | |
| 13:15:00 | 248.062 | |
| 13:17:00 | 248.099 | |
| 13:30:00 | 248.218 | |

**Reference depth 2473.1 mRKB**
(2445.4 TVD m MSL)

Fig 5.7

Bottomhole pressures for test no 1

| | | | |
|---|---|---|---|
| Date 05/87 | Auth BåB/RNY | Appr | |
| Draw by GAF | Ref EPF | | |

| | SEPARATOR TEMPERATURE (°C) | SEPARATOR PRESSURE (BAR) | CONDENSATE-GAS RATIO ($SM^3/SM^3$) |
|---|---|---|---|
| TEST NO 1 | 25.1 | 26.2 | $2.11 \times 10^{-4}$ |
| TEST NO 2 | 41.9 | 26.2 | $1.61 \times 10^{-4}$ |



Figure 5.8 Test separator data

| Dato | Forf | Godkj |
|---|---|---|
| 6/87 | BåB | RNy |
| Tegn av | Ref | |
| BS | | |

# 6407/2-3 Test no.2

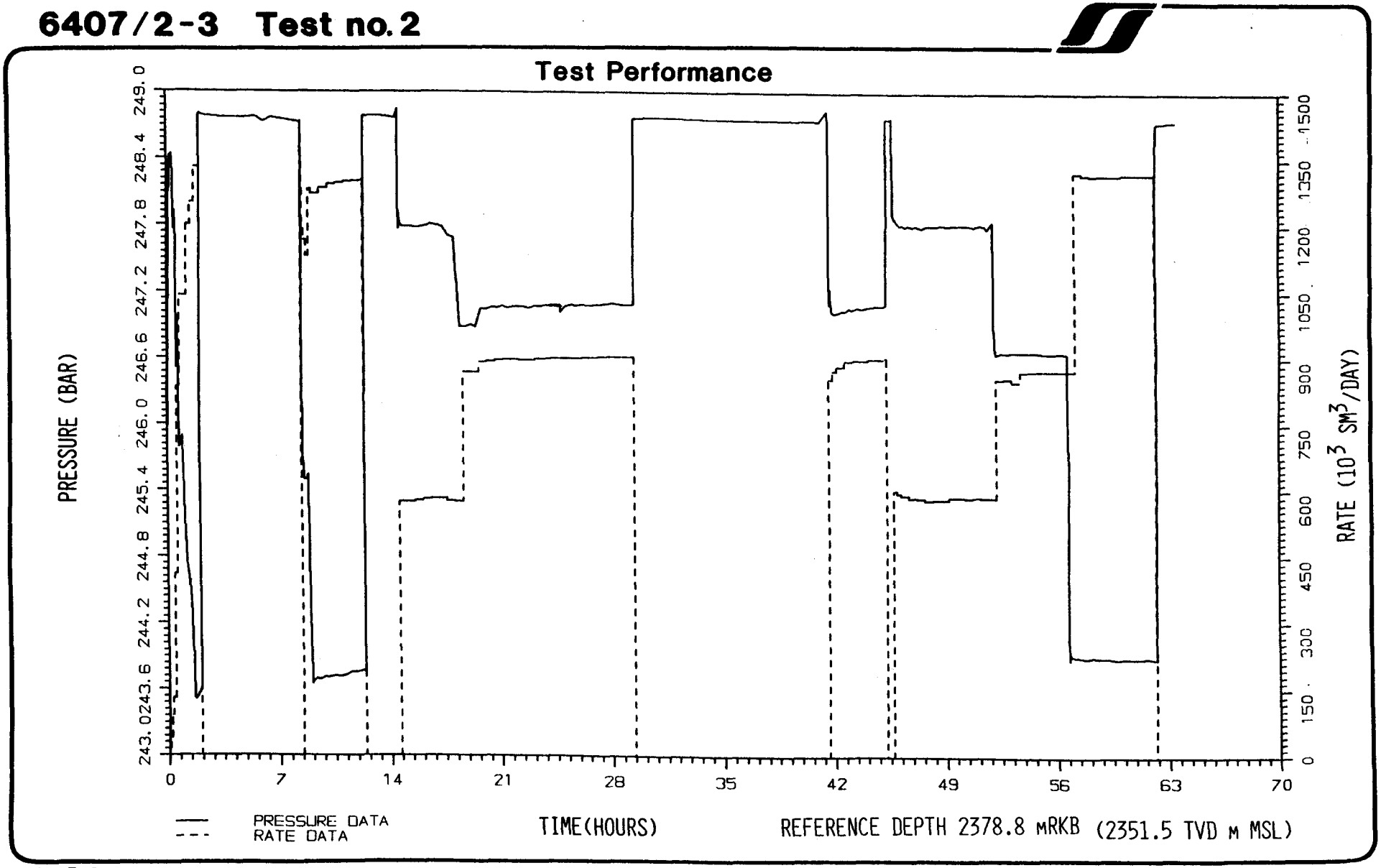


Fig 5.9

Bottomhole pressure and gas flow rate for test no 2 versus time.

| Date 03/87 | Auth. B&B | Appr. |
|---|---|---|
| Draw by GAF | Ref EPF | |

# 6407/2-3 Test No. 2

| Event | Date | Clocktime (hrs.min.) | Choke (mm) | Flowrate $10^3$ $Sm^3/D$ | BHP 1) (bar) | WHP (bar) | WHT (deg C) | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Perforated 2427.8 - 2435.8 mRKB (2400.3-2408.3 TVD mMSL) |
| Initial flow | 10.01.87 | 23:54 | 11.1 adj. | | | | | |
| | 11.01.87 | 00:00 | | | 248.0 | 31.0 | 0.6 | Increased the choke size gradually |
| | | 01:00 | | | 245.0 | 121.4 | 29.9 | from 11.1 mm adj. to 50.8 mm fix + |
| | | 01:41 | 50.8 fix. | | | | | 50.8 mm adj. during the flowperiod. |
| | | | +50.8 adj. | | | | | |
| Shut in the well | | 01:56 | | | 243.6 | 86.4 | 33.3 | |
| | | 06:00 | | | | | | Matre gauges set in the XN-nipple |
| Clean up flow | | 08:20 | 25.4 adj. | | | | | |
| | | 08:30 | | | 245.5 | 131.0 | 18.4 | |
| | | 08:48 | 38.1 fix. | | | | | |
| | | 10:00 | | 1291.0 2) | 243.7 | 86.1 | 37.0 | |
| | | 11:00 | | 1927.0 2) | 243.7 | 86.4 | 38.9 | |
| Shut in the well | | 12:17 | | 1300.0 2) | 243.8 | 86.6 | 40.0 | |
| Main flow | | 14:30 | 15.9 fix. | | | | | |
| | | 16:00 | | 582.0 2) | 247.8 | 181.3 | 36.0 | |
| | | 18:00 | | 576.0 2) | 247.7 | 179.6 | 37.8 | |
| | | 18:15 | 19.1 fix. | | | | | |
| | | 22:00 | | 897.0 2) | 247.1 | 167.9 | 45.7 | |
| | 12.01.87 | 02:00 | | 902.0 2) | 247.1 | 168.6 | 49.2 | |
| Shut in the well | | 05:17 | | 904.0 2) | 247.1 | 169.0 | 50.4 | |
| Multirate flow: | | | | | | | | |
| part I | | 17:31 | 19.1 fix. | | | | | |
| | | 19:00 | | 898.0 2) | 247.1 | 168.1 | 44.2 | |
| Shut in the well | | 21:09 | | 903.0 2) | 247.1 | 169.1 | 50.7 | Discovered leakage at TXT gas by-pass valve |
| Multirate flow: | | | | | | | | |
| part II | | 21:34 | 15.9 fix. | | | | | |
| | 13.01.87 | 00:00 | | 581.6 | 247.8 | 182.9 | 47.9 | |
| | | 03:00 | | 587.1 | 247.8 | 183.1 | 49.9 | |
| | | 03:52 | 20.6 fix. | | | | | |
| | | 05:00 | | 849.7 | 246.7 | 160.7 | 55.9 | |
| | | 08:00 | | 873.6 | 246.7 | 161.0 | 54.7 | |
| | | 08:32 | 38.1 adj. | | | | | |
| | | 08:38 | 38.1 fix | | | | | |
| | | 12:00 | | 1318.9 | 243.9 | 88.8 | 46.8 | |
| Shut in the well | | 14:05 | | 1320.5 | 244.3 | 88.7 | 45.4 | |

1) Reference depth at 2378.8 mRKB (2351.5 TVD mMSL)  2) Estimated from choke performance

Fig 5.10

Summary of the flow periods, test no 2

| Date 5/87 | Auth. BåB | Appr. RNy |
|---|---|---|
| Draw by | Ref. EPF | |

# 6407/2 - 3 Test no. 2

| Time (hr.min.sec) | Pressure (bar) | |
|---|---|---|
| 23:54:00 | 245.613 | |
| 23:56:00 | 245.982 | |
| 00:00:00 | 248.036 | 11.01.87 |
| 00:04:00 | 248.335 | |
| 00:15:00 | 248.439 | |
| 00:27:00 | 247.477 | |
| 00:55:00 | 245.329 | |
| 01:15:00 | 244.562 | |
| 01:35:00 | 243.508 | |
| 01:56:00 | 243.609 | |
| 01:57:00 | 248.785 | |
| 01:58:00 | 248.797 | |
| 02:01:00 | 248.800 | |
| 02:05:00 | 248.791 | |
| 02:30:00 | 248.781 | |
| 03:20:00 | 248.771 | |
| 04:40:00 | 248.764 | |
| 05:30:00 | 248.776 | |
| 06:30:00 | 248.769 | |
| 07:30:00 | 248.747 | |
| 08:19:00 | 248.727 | |
| 08:20:00 | 248.535 | |
| 08:21:00 | 247.155 | |
| 08:22:00 | 246.367 | |
| 08:25:00 | 245.686 | |
| 08:29:00 | 245.502 | |
| 08:50:00 | 244.355 | |
| 09:00:00 | 243.672 | |
| 09:20:00 | 243.688 | |
| 09:40:00 | 243.712 | |
| 10:00:00 | 243.714 | |
| 10:40:00 | 243.719 | |
| 11:20:00 | 243.756 | |
| 12:00:00 | 243.768 | |
| 12:16:00 | 243.767 | |
| 12:17:00 | 248.768 | |
| 12:18:00 | 248.781 | |
| 12:21:00 | 248.788 | |
| 12:25:00 | 248.783 | |
| 12:35:00 | 248.783 | |
| 12:45:00 | 248.786 | |
| 12:55:00 | 248.787 | |
| 13:20:00 | 248.783 | |
| 14:00:00 | 248.777 | |
| 14:30:00 | 248.686 | |
| 14:31:00 | 248.049 | |
| 14:32:00 | 247.826 | |
| 14:34:00 | 247.911 | |

Reference depth 2378.8 mRKB
(2351.5 TVD m MSL)

Fig 5,11
Bottomhole pressures for test no 2

| Date 05/87 | Auth B&E/ENV | Appr. |
|---|---|---|
| Draw by GAF | Ref. EPF | |

# 6407/2 - 3 Test no. 2

| Time (hr.min.sec) | Pressure (bar) | |
|---|---|---|
| 14:38:00 | 247.820 | |
| 14:42:00 | 247.798 | |
| 14:50:00 | 247.791 | |
| 15:20:00 | 247.788 | |
| 16:00:00 | 247.793 | |
| 16:40:00 | 247.809 | |
| 17:20:00 | 247.784 | |
| 18:00:00 | 247.690 | |
| 18:40:00 | 246.884 | |
| 19:20:00 | 246.887 | |
| 20:00:00 | 247.043 | |
| 20:40:00 | 247.059 | |
| 21:20:00 | 247.059 | |
| 22:00:00 | 247.066 | |
| 22:40:00 | 247.059 | |
| 23:20:00 | 247.076 | |
| 00:00:00 | 247.078 | 12.01.87 |
| 01:00:00 | 247.074 | |
| 01:40:00 | 247.078 | |
| 02:30:00 | 247.082 | |
| 03:30:00 | 247.091 | |
| 04:30:00 | 247.088 | |
| 05:00:00 | 247.087 | |
| 05:16:00 | 247.093 | |
| 05:17:00 | 248.759 | |
| 05:18:00 | 248.759 | |
| 05:19:00 | 248.768 | |
| 05:21:00 | 248.769 | |
| 05:25:00 | 248.766 | |
| 05:35:00 | 248.768 | |
| 05:50:00 | 248.771 | |
| 06:20:00 | 248.776 | |
| 07:00:00 | 248.773 | |
| 07:40:00 | 248.769 | |
| 08:20:00 | 248.769 | |
| 09:00:00 | 248.762 | |
| 10:00:00 | 248.758 | |
| 11:00:00 | 248.756 | |
| 12:00:00 | 248.754 | |
| 13:00:00 | 248.754 | |
| 14:00:00 | 248.751 | |
| 15:00:00 | 248.751 | |
| 15:30:00 | 248.747 | |
| 16:00:00 | 248.750 | |
| 16:30:00 | 248.749 | |
| 17:00:00 | 248.748 | |
| 17:30:00 | 248.848 | |

Reference depth 2378.8 mRKB
(2351.5 TVD m MSL)

Fig 5.11

Bottomhole pressures for test no 2

| Date 05/87 | Auth BaB/ | Appr. |
|---|---|---|
| Draw.by GAF | Ref EPF | |

# 6407/2 - 3 Test no. 2

| Time (hr.min.sec) | Pressure (bar) | |
|---|---|---|
| 17:31:00 | 248.685 | |
| 17:32:00 | 247.802 | |
| 17:33:00 | 247.321 | |
| 17:35:00 | 247.095 | |
| 17:39:00 | 247.111 | |
| 17:50:00 | 247.020 | |
| 18:20:00 | 247.040 | |
| 18:40:00 | 247.045 | |
| 19:00:00 | 247.054 | |
| 19:40:00 | 247.065 | |
| 20:30:00 | 247.085 | |
| 21:09:00 | 247.100 | |
| 21:10:00 | 248.499 | |
| 21:11:00 | 248.753 | |
| 21:12:00 | 248.762 | |
| 21:14:00 | 248.773 | |
| 21:18:00 | 248.772 | |
| 21:25:00 | 248.768 | |
| 21:33:00 | 248.774 | |
| 21:34:00 | 248.395 | |
| 21:35:00 | 248.071 | |
| 21:36:00 | 247.952 | |
| 21:38:00 | 247.880 | |
| 21:40:00 | 247.875 | |
| 21:42:00 | 247.872 | |
| 21:45:00 | 247.858 | |
| 21:55:00 | 247.831 | |
| 22:10:00 | 247.821 | |
| 22:30:00 | 247.813 | |
| 22:50:00 | 247.804 | |
| 23:20:00 | 247.791 | |
| 00:00:00 | 247.809 | 13.01.87 |
| 00:40:00 | 247.815 | |
| 01:20:00 | 247.811 | |
| 02:00:00 | 247.814 | |
| 02:40:00 | 247.803 | |
| 03:20:00 | 247.810 | |
| 03:50:00 | 247.850 | |
| 04:20:00 | 246.662 | |
| 05:00:00 | 246.667 | |
| 06:00:00 | 246.663 | |
| 07:00:00 | 246.653 | |
| 08:00:00 | 246.659 | |

Reference depth 2378.8 mRKB
(2351.5 TVD m MSL)

Fig 5.11
Bottomhole pressures for test no 2

| Date 05/87 | Auth [illegible] | Appr. |
|---|---|---|
| Draw by GAF | Ref EPF | |

# 6407/2-3 Test no. 2

| Time (hr.min.sec) | Pressure (bar) |
|---|---|
| 08:31:00 | 246.559 |
| 09:00:00 | 243.910 |
| 09:40:00 | 243.902 |
| 10:30:00 | 243.901 |
| 11:30:00 | 243.888 |
| 12:30:00 | 243.896 |
| 13:00:00 | 243.896 |
| 14:00:00 | 243.890 |
| 14:04:00 | 243.891 |
| 14:05:00 | 244.319 |
| 14:07:00 | 248.396 |
| 14:11:00 | 248.732 |
| 14:25:00 | 248.735 |
| 14:45:00 | 248.741 |
| 15:20:00 | 248.744 |

**Reference depth 2378.8 mRKB**
(2351.5 TVD m MSL)

Fig 5.11
Bottomhole pressures for test no 2

| | | | |
|---|---|---|---|
| Date 05/87 | Auth BåB/HNy | Appr | |
| Draw by GAF | Ref EPF | | |

# Fluid Analyses, 6407/2-3

PVT-DATA

| | | | |
|---|---|---|---|
| Production test no. | : | 1 | 2 |
| Analyzed by | : | Geco | Flopetrol |
| Sample type | : | Recomb. | Recomb. |
| Perforated interval (mRKB) | : | 2508.7 - 2518.2 | 2427.7 - 2435.8 |
| Dew point pressure (bar) | : | 247 | 231.2 |
| May retrograde liquid Deposit (%) [1] | : | 2.8 | 2.2 |

Reservoir fluid composition

| | mol % | mol % |
|---|---|---|
| $N_2$ | 0.63 | 0.68 |
| $CO_2$ | 0.74 | 0.72 |
| $C_1$ | 79.56 | 80.98 |
| $C_2$ | 9.70 | 9.09 |
| $C_3$ | 3.97 | 3.73 |
| $i\text{-}C_4$ | 0.67 | 0.62 |
| $n\text{-}C_4$ | 1.15 | 1.07 |
| $i\text{-}C_5$ | 0.39 | 0.35 |
| $n\text{-}C_5$ | 0.41 | 0.38 |
| $C_6$ | 0.45 | 0.43 |
| $C_7$ | 0.64 | 0.58 |
| $C_8$ | 0.65 | 0.60 |
| $C_9$ | 0.27 | 0.27 |
| $C_{10+}$ | 0.77 | 0.50 |

1) % of hydrocarbon pore space from constant mass study.

Fig. 5.12 FLUID ANALYSES

| | | | |
|---|---|---|---|
| Date 05-87 | Auth. JMH | Appr. JMH | |
| Draw by GAF | Ref. EPR | | |

# Fluid Analyses, 6407/2-3

Trace element analyses

| Gas Phase | Production Test no 1 | Production Test no 2 |
|---|---|---|
| $H_2S$ (ppm-mol) | < 0.01 - 06 | 0.1 - 0.4 |
| Mercaptanes (ppm-mol) | < 0.1 | < 0.1 |
| $CO_2$ (mol %) | 0.7 - 0.8 | 0.6 - 0.9 |
| Radon - 222 (Bq/l) | 0.04 - 0.09 | 0.04 - 0.11 |
| $H_2O$ (mg/l) | 0.10 - 0.39 | 0.23 - 0.69 |
| Water vapour dew point (°C) | (-32) - (-40) | (-28) - (-32) |
| Total mercury ($\mu g/m^3$) | 44 - 93 | 37 - 70 |

| Condensate phase | | |
|---|---|---|
| Water (mg-l) | 296 - 3330 | 155 - 1181 |
| Total sulphur (Wt %) | < 0.01 | < 0.01 |
| Polonium -210 (Bq/l) | < 0.1 | <0.1 |
| Nickel (ppm-weight) | <0.1 | <0.1 |
| Vanadium (ppm-weight) | 0.4 - 0.5 | 0.3 - 0.5 |
| Mercury (µg/l) | 52 - 62 | 22 - 34 |

Fig. 5.13 FLUID ANALYSES

| Date 05-87 | Auth. JMH | Appr. JMH |
|---|---|---|
| Draw.by GAF | Ref. [illegible]R | |

SAGA PETROLEUM A.S.

6.2.1 MUD PROPERTIES, DAILY REPORT
Well no: 6407/2-3

| Date | Hole size | Hole depth | Mud weight | PV | YP | Gel strength | pH | Alkalinity Pf / Mf | Ca++ mg/l | Cl- mg/l | Sand % | Solids % | Mudtype |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 861104 | | .0 | 1.03 | | | | | | | | | | WATER BASED |
| 861105 | | .0 | 1.03 | | | | | | | | | | WATER BASED |
| 861106 | | .0 | 1.09 | | | | | | | | | | SPUD MUD |
| 861107 | 36 | 286.0 | 1.06 | | | | | | | | | | SPUD MUD |
| 861108 | 36 | 286.0 | 1.06 | | | | | | | | | | SPUD MUD |
| 861109 | 36 | 327.0 | 1.06 | | | | | | | | | | SPUD MUD |
| 861110 | 36 | 403.0 | 1.06 | | | | | | | | | | SPUD MUD |
| 861111 | 36 | 403.0 | 1.06 | | | | | | | | | | SPUD MUD |
| 861112 | 17-1/2 | 531.0 | 1.13 | 5 | 40 | 30/37 | 9.0 | | | 3000 | | | SPUD MUD |
| 861113 | 17-1/2 | 915.0 | 1.14 | 6 | 36 | 30/35 | 8.5 | | | 8800 | 0.3 | | SPUD MUD |
| 861114 | 17-1/2 | 915.0 | 1.18 | 6 | 36 | 27/30 | 8.9 | | | 9500 | | 13.0 | SPUD MUD |
| 861115 | 17-1/2 | 915.0 | 1.18 | 7 | 40 | 31/32 | 8.5 | | | 9700 | 0.3 | 13.0 | SPUD MUD |
| 861116 | 26 | 915.0 | 1.20 | 8 | 30 | 20/30 | 8.5 | | | | | | GEL MUD |
| 861117 | 26 | 915.0 | 1.10 | 24 | 33 | 3/4 | 8.0 | 0.0/0.2 | | 700 | | 3.5 | GYP/POLYMER MUD |
| 861118 | 26 | 915.0 | 1.10 | 25 | 35 | 3/4 | 8.0 | 0.0/0.2 | | 700 | | 3.5 | GYP/POLYMER MUD |
| 861119 | 17-1/2 | 1119.0 | 1.12 | 15 | 18 | 2/5 | 8.8 | 0.0/0.2 | | 1500 | | 8.0 | GYP/POLYMER MUD |
| 861120 | 17-1/2 | 1345.0 | 1.14 | 13 | 12 | 3/5 | 8.4 | 0.0/0.4 | 2400 | 3500 | 0.3 | 9.0 | GYP/POLYMER MUD |
| 861121 | 17-1/2 | 1770.0 | 1.30 | 18 | 19 | 5/10 | 8.0 | 0.0/0.6 | 2450 | 6500 | | 12.0 | GYP/POLYMER MUD |
| 861122 | 17-1/2 | 1968.0 | 1.45 | 20 | 13 | 6/18 | 8.2 | 0.0/0.5 | 2500 | 11000 | | 16.0 | GYP/POLYMER MUD |
| 861123 | 17-1/2 | 1968.0 | 1.45 | 16 | 11 | 3/20 | 8.0 | 0.0/0.5 | 2300 | 11000 | | 16.0 | GYP/POLYMER MUD |
| 861124 | 17-1/2 | 1968.0 | 1.45 | 16 | 11 | 3/18 | 8.0 | 0.0/0.5 | 2300 | 11000 | 0.2 | 16.0 | GYP/POLYMER MUD |
| 861125 | 12-1/4 | 2104.0 | 1.50 | 28 | 19 | 8/45 | 9.2 | 0.1/0.9 | 2800 | 11700 | | 16.5 | GYP/POLYMER MUD |
| 861126 | 12-1/4 | 2310.0 | 1.58 | 24 | 15 | 10/55 | 9.5 | 0.1/0.7 | 1400 | 8500 | | 19.0 | GYP/POLYMER MUD |
| 861127 | 12-1/4 | 2397.0 | 1.58 | 18 | 14 | 7/48 | 9.1 | 0.0/0.1 | 1200 | 6500 | | 20.5 | GYP/POLYMER MUD |
| 861128 | 12-1/4 | 2443.0 | 1.58 | 18 | 13 | 7/44 | 9.0 | 0.0/0.1 | 1600 | 4800 | | 19.5 | GYP/POLYMER MUD |
| 861129 | 12-1/4 | 2476.5 | 1.58 | 21 | 19 | 12/60 | 9.0 | 0.0/0.1 | 1520 | 4800 | | 20.0 | GYP/POLYMER MUD |
| 861130 | 12-1/4 | 2502.5 | 1.58 | 19 | 21 | 14/65 | 9.0 | 0.0/0.1 | 1400 | 4800 | | 20.0 | GYP/POLYMER MUD |
| 861201 | 12-1/4 | 2537.0 | 1.58 | 17 | 17 | 13/76 | 9.2 | 0.1/0.5 | 1280 | 4500 | 0.5 | 20.0 | GYP/POLYMER MUD |
| 861202 | 12-1/4 | 2557.0 | 1.58 | 13 | 14 | 3/18 | 10.2 | 0.1/0.5 | 880 | 4600 | 0.3 | 20.0 | GYP/POLYMER MUD |
| 861203 | 12-1/4 | 2573.0 | 1.58 | 13 | 13 | 7/41 | 9.2 | 0.1/0.5 | 1160 | 4600 | 0.3 | 20.0 | GYP/POLYMER MUD |
| 861204 | 12-1/4 | 2645.0 | 1.58 | 15 | 14 | 6/35 | 9.8 | 0.1/0.5 | 1120 | 4600 | 0.5 | 20.0 | GYP/POLYMER MUD |

SAGA PETROLEUM A.S.

6.2.1 MUD PROPERTIES, DAILY REPORT
Well no: 6407/2-3

| Date | Hole size | Hole depth | Mud weight | PV | YP | Gel strength | pH | Alkalinity Pf / Mf | Ca++ mg/l | Cl- mg/l | Sand % | Solids % | Mudtype |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 861205 | 12-1/4 | 2645.0 | 1.58 | 15 | 13 | 4/35 | 9.5 | 0.1/0.6 | 1160 | 4600 | 0.3 | 20.0 | GYP/POLYMER MUD |
| 861206 | 12-1/4 | 2645.0 | 1.58 | 15 | 14 | 3/28 | 9.6 | 0.1/0.5 | 1440 | 6000 | 0.3 | 20.0 | GYP/POLYMER MUD |
| 861207 | 12-1/4 | 2645.0 | 1.58 | 15 | 16 | 5/35 | 9.5 | 0.1/0.4 | 1320 | 5100 | 0.5 | 20.0 | GYP/POLYMER MUD |
| 861208 | PB | 2645.0 | 1.58 | 15 | 18 | 6/42 | 9.5 | 0.1/0.5 | 880 | 4900 | 0.5 | 20.0 | GYP/POLYMER MUD |
| 861209 | PB | 2645.0 | 1.58 | 18 | 17 | 8/39 | 9.7 | 0.1/0.6 | 880 | 5000 | 0.5 | 21.0 | GYP/POLYMER MUD |
| 861210 | 12-1/4 | 2645.0 | 1.58 | 17 | 18 | 8/37 | 9.6 | 0.1/0.5 | 1140 | 6800 | 0.3 | 20.5 | GYP/POLYMER MUD |
| 861211 | 12-1/4 | 2645.0 | 1.58 | 16 | 15 | 8/52 | 9.5 | 0.1/0.4 | 1160 | 6000 | 0.3 | 20.5 | GYP/POLYMER MUD |
| 861212 | 12-1/4 | 2645.0 | 1.58 | 17 | 13 | 7/50 | 9.6 | 0.1/0.4 | 1280 | 6500 | 0.3 | 20.5 | GYP/POLYMER MUD |
| 861213 | 12-1/4 | 2645.0 | 1.59 | 15 | 15 | 8/50 | 9.5 | 0.1/0.5 | 1320 | 6500 | 0.3 | 20.5 | GYP/POLYMER MUD |
| 861214 | PB | 2435.0 | 1.58 | 16 | 16 | 8/51 | 9.5 | 0.1/0.5 | 1280 | 6500 | 0.3 | 20.5 | GYP/POLYMER MUD |
| 861215 | PB | 2386.0 | 1.58 | 14 | 14 | 8/53 | 10.0 | 0.1/0.7 | 1120 | 6300 | 0.3 | 19.5 | GYP/POLYMER MUD |
| 861216 | PB | 2386.0 | 1.58 | 14 | 14 | 8/54 | 10.0 | 0.1/0.7 | 1120 | 6300 | 0.3 | 19.5 | GYP/POLYMER MUD |
| 861217 | PB | 2386.0 | 1.27 | 14 | 11 | 4/17 | 10.5 | 0.3/0.9 | 360 | 3400 | 0.3 | 10.5 | GYP/POLYMER MUD |
| 861218 | PB | 2386.0 | 1.27 | 15 | 14 | 3/16 | 11.5 | 0.7/1.3 | 400 | 3000 | 0.2 | 11.0 | GYP/POLYMER MUD |
| 861219 | 8-1/2 | 2426.0 | 1.25 | 15 | 14 | 5/18 | 11.7 | 0.4/1.3 | | 3200 | | 10.0 | GEL MUD |
| 861220 | 8-1/2 | 2505.0 | 1.25 | 14 | 13 | 4/19 | 11.6 | 0.3/0.8 | | 3300 | 0.1 | 9.0 | GEL MUD |
| 861221 | 8-1/2 | 2657.0 | 1.25 | 16 | 16 | 5/23 | 10.5 | 0.3/1.1 | | 3200 | 0.1 | 10.0 | GEL MUD |
| 861222 | 8-1/2 | 2741.0 | 1.25 | 17 | 15 | 7/31 | 10.5 | 0.4/1.3 | | 3200 | 0.1 | 10.0 | GEL MUD |
| 861223 | 8-1/2 | 2798.0 | 1.25 | 16 | 16 | 6/32 | 10.5 | 0.3/1.3 | | 3500 | 0.3 | 10.0 | GEL MUD |
| 861224 | 8-1/2 | 3036.0 | 1.25 | 19 | 17 | 6/29 | 10.0 | 0.3/1.2 | | 3300 | 0.3 | 9.0 | GEL MUD |
| 861225 | 8-1/2 | 3050.0 | 1.25 | 19 | 16 | 5/23 | 10.5 | 0.3/1.2 | | 3200 | 0.3 | 10.0 | GEL MUD |
| 861226 | 8-1/2 | 3050.0 | 1.25 | 19 | 16 | 5/21 | 10.7 | 0.3/1.2 | | 3200 | 0.3 | 10.0 | GEL MUD |
| 861227 | 8-1/2 | 3050.0 | 1.25 | 19 | 16 | 5/20 | 10.6 | 0.3/1.2 | | 3200 | 0.3 | 10.0 | GEL MUD |
| 861228 | 8-1/2 | 3050.0 | 1.25 | 18 | 14 | 4/18 | 10.4 | 0.4/1.2 | | 3000 | 0.2 | 10.0 | GEL MUD |
| 861229 | 8-1/2 | 3050.0 | 1.25 | 16 | 14 | 4/19 | 10.5 | 0.3/1.2 | | 3500 | 0.2 | 10.0 | GEL MUD |
| 861230 | PB | 2640.0 | 1.25 | 16 | 14 | 4/23 | 10.9 | 0.4/1.3 | | 3400 | 0.2 | 10.0 | GEL MUD |
| 861231 | PB | 2588.0 | 1.25 | 14 | 10 | 4/13 | 11.0 | 0.4/1.3 | | 3600 | 0.2 | 9.5 | GEL MUD |
| 870101 | PB | 2588.0 | 1.25 | 14 | 9 | 4/12 | 10.9 | 0.4/1.3 | | 3700 | 0.2 | 9.5 | GEL MUD |
| 870102 | PB | 2588.0 | 1.25 | 16 | 12 | 4/14 | 10.8 | 0.4/1.2 | | 3700 | 0.2 | 9.5 | GEL MUD |
| 870103 | PB | 2588.0 | 1.25 | 15 | 11 | 4/14 | 10.8 | 0.3/1.2 | | 3800 | 0.2 | 9.5 | GEL MUD |
| 870104 | PB | 2588.0 | 1.25 | 15 | 11 | 4/13 | 10.7 | 0.3/1.2 | | 3800 | 0.2 | 9.5 | GEL MUD |

SAGA PETROLEUM A.S.

6.2.1 MUD PROPERTIES, DAILY REPORT
Well no: 6407/2-3

| Date | Hole size | Hole depth | Mud weight | PV | YP | Gel strength | pH | Alkalinity Pf / Mf | Ca++ mg/l | Cl- mg/l | Sand % | Solids % | Mudtype |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 870105 | PB | 2588.0 | 1.25 | 15 | 11 | 4/13 | 10.6 | 0.3/1.2 | | 3800 | 0.2 | 9.5 | GEL MUD |
| 870106 | PB | 2588.0 | 1.25 | 14 | 11 | 4/14 | 10.7 | 0.3/1.2 | | 3700 | 0.3 | 9.5 | GEL MUD |
| 870107 | PB | 2452.0 | 1.25 | 15 | 14 | 5/16 | 11.5 | 0.5/1.5 | 440 | 38 | 0.3 | 9.5 | GEL MUD |
| 870108 | PB | 2452.0 | 1.25 | 16 | 14 | 5/16 | 11.5 | 0.5/1.5 | | 3800 | 0.3 | 9.5 | GEL MUD |
| 870109 | PB | 2452.0 | 1.25 | 16 | 15 | 5/16 | 11.5 | 0.4/1.5 | | 3800 | 0.3 | 9.5 | GEL MUD |
| 870110 | PB | 2452.0 | 1.25 | 16 | 15 | 5/16 | 11.5 | 0.4/1.5 | | 3800 | 0.3 | 9.5 | GEL MUD |
| 870111 | PB | 2452.0 | 1.25 | 16 | 15 | 5/16 | 11.5 | 0.4/1.5 | | 3800 | 0.3 | 9.5 | GEL MUD |
| 870112 | PB | 2452.0 | 1.25 | 16 | 15 | 5/16 | 11.5 | 0.4/1.5 | | 3800 | 0.3 | 9.5 | GEL MUD |
| 870113 | PB | 2452.0 | 1.25 | 14 | 14 | 5/14 | 10.5 | 0.2/0.8 | | 8000 | 0.3 | 9.5 | GEL MUD |
| 870114 | PB | 2345.0 | 1.25 | 12 | 14 | 4/13 | | | | | | | GEL MUD |

SAGA PETROLEUM A.S. 6.2.2 MUD MATERIALS USED

Well no: 6407/2-3

| Materials | Unit | 36 in hole | 26 in hole | 17-1/2 hole | 12-1/4 hole | 8-1/2 hole | Total |
|---|---|---|---|---|---|---|---|
| BARITE | M/T | 0 | 170 | 340 | 701 | 75 | 1286 |
| CAUSTIC SODA | 25 KG | 5 | 0 | 24 | 88 | 37 | 154 |
| GYPSUM | 50 KG | 0 | 0 | 500 | 220 | 62 | 782 |
| LIME | 40 KG | 9 | 6 | 0 | 10 | 11 | 36 |
| KOH -POTASS. | 50KG | 0 | 0 | 0 | 4 | 0 | 4 |
| SODA ASH | 50 KG | 0 | 0 | 3 | 19 | 8 | 30 |
| BENTONITE | M/T | 27 | 46 | 0 | 11 | 8 | 92 |
| ANTISOL FL 10 | 25 KG | 0 | 0 | 122 | 105 | 35 | 262 |
| ANTISOL FL 30 | 25 KG | 0 | 4 | 216 | 60 | 33 | 313 |
| BORREWELL C | 25KG | 0 | 0 | 0 | 167 | 112 | 279 |
| XC-POLYMER | 25 KG | 0 | 11 | 38 | 2 | 17 | 68 |
| CAUSTIC LIQ | 35LTR | 0 | 0 | 0 | 0 | 2 | 2 |
| PIPELAX | 55G/D | 0 | 0 | 0 | 4 | 0 | 4 |
| XP-20 | 22.5K | 0 | 0 | 0 | 148 | 146 | 294 |