

Company: Esso Australia Pty Ltd.

Well: A-10a
Field: Bream A
Rig : Prod4 / Crane Country: Australia

MWPT 2 1/8" Phased
Powerjet Perforation
Record

Prod4 / Crane
Bream A
Gippsland
A-10a
Esso Australia Pty Ltd.

| LOCATION | |
|-------------------------|----------------------------|
| Gippsland | Elev.: K.B. 32.82 m |
| Basin | G.L. -59 m |
| Bass Strait | D.F. 32.82 m |
| Permanent Datum: | M.S.L. _____ |
| Log Measured From: | D.F. _____ |
| Drilling Measured From: | D.F. _____ |
| State: Victoria | Max. Well Deviation 48 deg |
| | Longitude 147°46'19.976"E |
| | Latitude 38°29'58.824"S |

| | | | |
|-------------------------------|---------------------|--------------|------|
| Logging Date | 14-Jun-2007 | | |
| Run Number | One | | |
| Depth Driller | 3333 m | | |
| Schlumberger Depth | 3329 m | | |
| Bottom Log Interval | 3329 m | | |
| Top Log Interval | 3200 m | | |
| Casing Fluid Type | Production Fluids | | |
| Salinity | | | |
| Density | | | |
| Fluid Level | 2201 m | | |
| BIT/CASING/TUBING STRING | | | |
| Bit Size | 8.500 in | | |
| From | | | |
| To | | | |
| Casing/Tubing Size | 7.000 in | | |
| Weight | 26 lbm/ft | | |
| Grade | L-80 | | |
| From | 2056 m | | |
| To | 3391 m | | |
| Maximum Recorded Temperatures | 286 degF | | |
| Logger On Bottom | 14-Jun-2007 | | 9:35 |
| Unit Number | 889 | Prod4 / Ausl | |
| Recorded By | G Wright. | | |
| Witnessed By | B White,B Robinson. | | |

| | | |
|--|-------------------------------|---------|
| | Oil Density | Run 1 |
| | Water Salinity | |
| | Gas Gravity | |
| | Bo | |
| | Bw | |
| | 1/Bq | |
| | Bubble Point Pressure | |
| | Bubble Point Temperature | |
| | Solution GOR | |
| | Maximum Deviation | 48 deg |
| | CEMENTING DATA | |
| | Primary/Squeeze | Primary |
| | Casing String No | |
| | Lead Cement Type | |
| | Volume | |
| | Density | |
| | Water Loss | |
| | Additives | |
| | Tail Cement Type | |
| | Volume | |
| | Density | |
| | Water Loss | |
| | Additives | |
| | Expected Cement Top | |
| | Logging Date | |
| | Run Number | |
| | Depth Driller | |
| | Schlumberger Depth | |
| | Bottom Log Interval | |
| | Top Log Interval | |
| | Casing Fluid Type | |
| | Salinity | |
| | Density | |
| | Fluid Level | |
| | BIT/CASING/TUBING STRING | |
| | Bit Size | |
| | From | |
| | To | |
| | Casing/Tubing Size | |
| | Weight | |
| | Grade | |
| | From | |
| | To | |
| | Maximum Recorded Temperatures | |
| | Logger On Bottom | |
| | Unit Number | |
| | Recorded By | |
| | Witnessed By | |

DEPTH SUMMARY LISTING

Date Created: 13-JUN-2007 13:28:25

Depth System Equipment

| Depth Measuring Device | Tension Device | Logging Cable |
|--|---|---|
| Type: IDW-EB Serial Number: 6373 Calibration Date: 4-Jan-2007 Calibrator Serial Number: 9 Calibration Cable Type: 2-23ZT Wheel Correction 1: -2 Wheel Correction 2: -4 | Type: PSDS/OSDS Serial Number: 325357 Calibration Date: 10-Jun-2007 Calibrator Serial Number: 1174 Calibration Gain: 0.92 Calibration Offset: 199.00 | Type: 2-32ZT Serial Number: 24425 Length: 6449.87 M Conveyance Method: Wireline Rig Type: Rigless |

Depth Control Parameters

| | |
|---------------------------|----------------------------|
| Log Sequence: | Subsequent Log In the Well |
| Reference Log Name: | Solar Composite Log |
| Reference Log Run Number: | |
| Reference Log Date: | 14-May-2005 |

Depth Control Remarks

| |
|---------------------------------------|
| 1. IDW used as primary depth control. |
| 2. Z-chart used as secondary backup |
| 3. |
| 4. |
| 5. |
| 6. |

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.













| |
|-----------------|
| OTHER SERVICES1 |
| OS1: None |

| |
|---|
| REMARKS: RUN NUMBER 1 |
| Log correlated to ExxonMobil composite dated 14-May-2005. |
| Objective: Perforate the well using MWPT and a 6m - 6spf 45deg Phased |
| Powerjet gun over the interval 3323m MDKB to 3329m MDKB . |
| Maximum Well Deviation : 48deg @ 2316m MDKB |
| H2s:280ppm C02: 8.7% of gas zone to be perforated. |
| Before Perforation- SBHP: 3812 psia SBHT: 270 degf |
| After Perforation- SBHP: 3390 nsia SBHT: 267 degf |

| | | |
|---|--|--|
| After Penetration - CDPT: 0.000 psi - CDPT: 207 deg. | | |
| Due to HUD being tagged high,3333m MDKB the gun was logged down to depth and fired. | | |
| The log was then flipped for presentation. | | |
| High pressure and temperatures recorded,286 degf observed after gun was fired. | | |
| | | |
| Crew : Jake Annear,Andrew Hall . | | |
| | | |
| | | |
| | | |
| | | |

| | | |
|------------------|--------------|------|
| RUN 1 | | |
| SERVICE ORDER #: | AUSL07328215 | |
| PROGRAM VERSION: | 14C0-302 | |
| FLUID LEVEL: | 2201 m | |
| LOGGED INTERVAL | START | STOP |
| | | |
| | | |
| | | |
| | | |

| | | |
|-----------------------|--|--|
| EQUIPMENT DESCRIPTION | | |
| RUN 1 | | |

| | | |
|--------------------|---|-----------|
| SURFACE EQUIPMENT | | |
| MWPM-. 3000 | | |
| DOWNHOLE EQUIPMENT | | |
| | | |
| AH-SWBS-B 731 |  | 15.69 |
| AH-SWBS-B 761 |  | 15.00 |
| AH-SWBS-B 762 |  | 14.32 |
| AH-SWBS-B 763 |  | 13.63 |
| MH-SWHS-A 726 |  | 12.95 |
| AH-124 1001 |  | 12.62 |
| MWPG-AA 19 |  | 12.41 |
| MWGH-AA 19 | | 2.41 |
| MWPH-AA 94 |  | 11.43 |
| MWPS-AA 94 | | |
| | CCL SMWP Pres SMWP Temp Tension | TOOL ZERO |
| AH-Flex Joint 41 |  | 8.61 |
| AH-122 8 |  | 8.06 |
| AH-SAH-G 1035 |  | 7.95 |
| MPD-MB 268 |  | 7.50 |

AH-ESIC 4100821

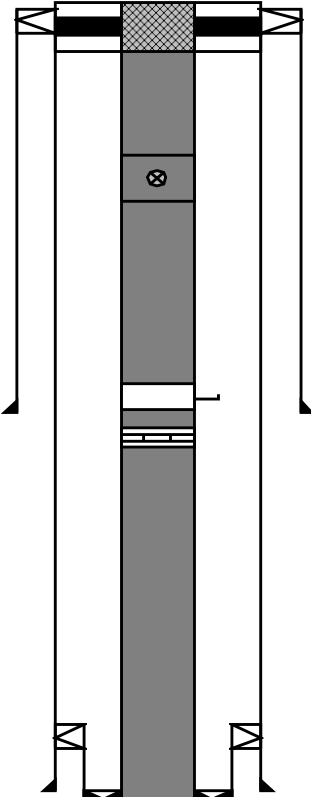
GUN-6m 45deg Phased Powerjet Gun 1

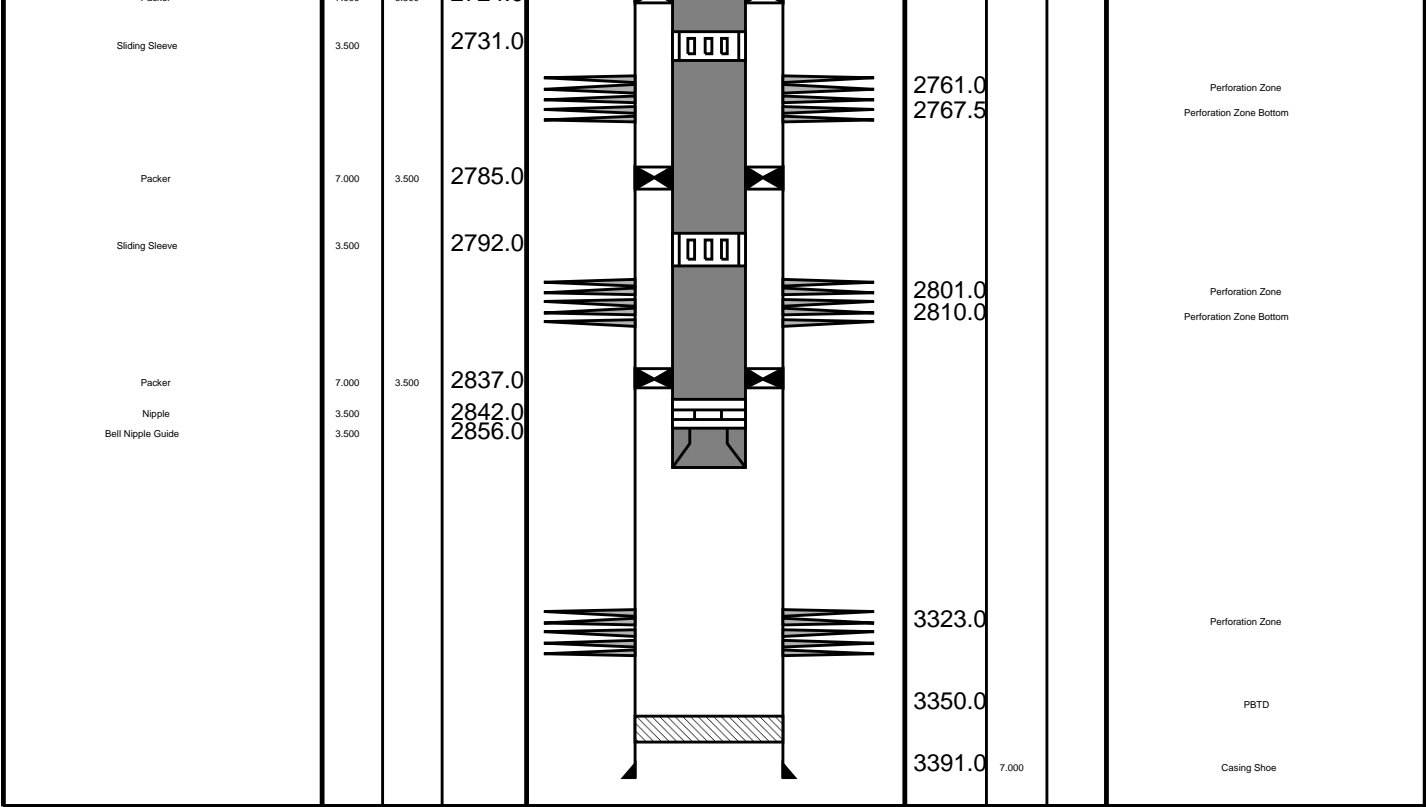
6.96

6.50

TOOL BOTTOM

MAXIMUM STRING DIAMETER 2.13 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

| Production String | (in) | | (m) | Well Schematic | (m) | (in) | | Casing String |
|-------------------|-------|-------|--------|---|--------|--------|-------|---------------|
| | OD | ID | MD | | MD | OD | ID | |
| Tubing | 3.500 | | 11.0 |  | 11.0 | 9.675 | | Casing String |
| Tubing Hanger | 9.675 | 3.500 | 11.0 | | 11.0 | 13.375 | 9.675 | Liner Hanger |
| | | | | | 13.0 | 13.375 | | Casing String |
| Shut-in Valve | 3.500 | | 444.6 | | | | | |
| | | | | | | | | |
| Gas Lift Mandrel | 3.500 | | 964.0 | | 921.0 | 13.375 | | Casing Shoe |
| Nipple | 3.500 | | 980.0 | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Packer | 7.000 | 3.500 | 2724.0 | | 2056.0 | 7.000 | | Casing String |
| | | | | | 2056.0 | 9.675 | 7.000 | Liner Hanger |
| | | | | | 2258.0 | 9.675 | | Casing Shoe |

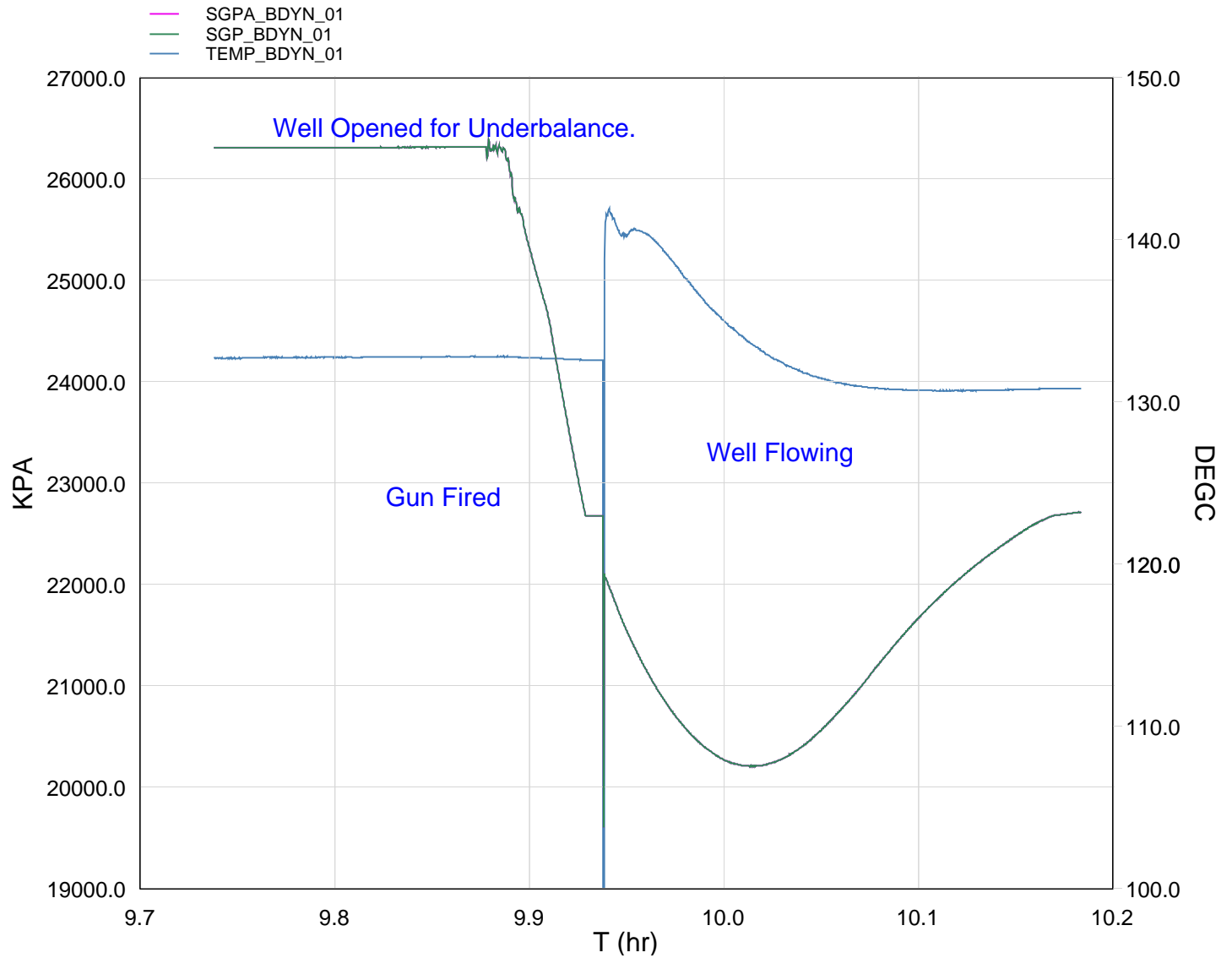


Job Event Summary

MAXIS Field Log

Schlumberger Job Event Summary

| Time | Elapsed Time | Depth (M) | File |
|-----------------|-------------------|-----------|------------------------------|
| Log Pass (down) | 14-Jun-2007 8:27 | 001:10 | 482.0 - 3286.4 PERFO_018LDP |
| Log Pass (down) | 14-Jun-2007 9:37 | 000:34 | 3284.1 - 3319.4 PERFO_019LDP |
| Station Log | 14-Jun-2007 9:43 | 000:27 | 3319.5 - 4.1 PERFO_020LTP |
| Log Pass (up) | 14-Jun-2007 10:12 | 000:10 | 3319.4 - 3242.8 PERFO_021LUP |



| TIME | DEGF | PSIA |
|--------|--------|----------|
| 6180.0 | 267.53 | 3290.209 |
| 6120.0 | 267.42 | 3267.157 |
| 6060.0 | 267.35 | 3234.463 |
| 6000.0 | 267.29 | 3197.357 |
| 5940.0 | 267.32 | 3153.130 |
| 5880.0 | 267.41 | 3102.232 |
| 5820.0 | 267.83 | 3044.168 |
| 5760.0 | 268.49 | 2992.648 |
| 5700.0 | 269.67 | 2952.683 |
| 5640.0 | 271.67 | 2932.835 |
| 5580.0 | 274.34 | 2936.517 |
| 5520.0 | 278.04 | 2966.672 |

| | | |
|--------|--------|----------|
| 5320.0 | 278.04 | 2900.072 |
| 5460.0 | 282.56 | 3022.305 |
| 5400.0 | 285.25 | 3104.576 |
| 5340.0 | 270.70 | 3289.417 |
| 5280.0 | 270.79 | 3413.928 |
| 5220.0 | 270.92 | 3637.429 |
| 5160.0 | 271.08 | 3815.144 |
| 5100.0 | 271.09 | 3817.134 |
| 5040.0 | 271.06 | 3816.882 |
| 4980.0 | 271.00 | 3816.736 |
| 4920.0 | 271.02 | 3816.613 |
| 4860.0 | 270.99 | 3816.521 |
| 4800.0 | 270.99 | 3816.191 |
| 4740.0 | 270.98 | 3816.310 |
| 4680.0 | 270.93 | 3816.058 |
| 4620.0 | 270.89 | 3815.852 |



Log Down to Shoot
3319.5m MDKB

MAXIS Field Log

Company: Esso Australia Pty Ltd. Well: A-10a

Input DLIS Files

DEFAULT Flip_PERFO_024LUP PRODUCER 14-Jun-2007 10:30 3319.4 M 3284.1 M

Output DLIS Files

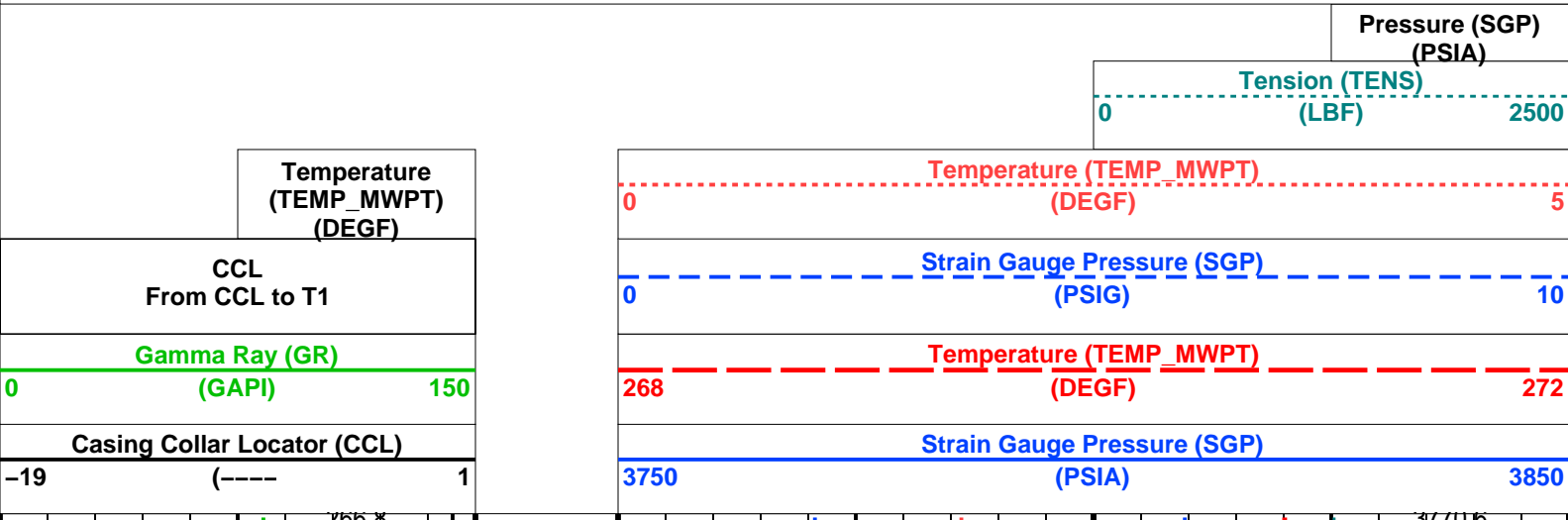
DEFAULT PERFO_026PUP FN:24 PRODUCER 14-Jun-2007 10:34 3319.4 M 3282.1 M

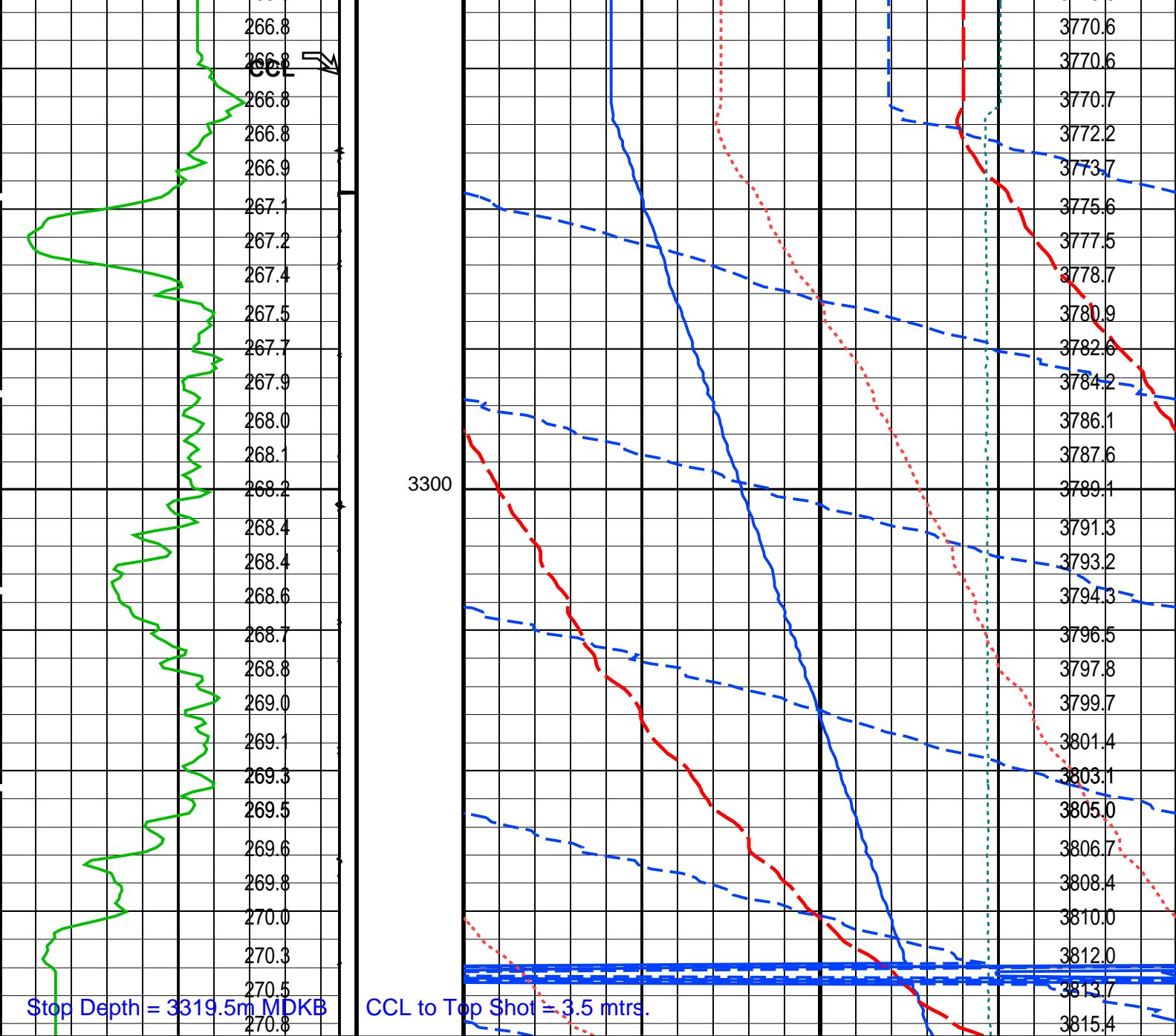
OP System Version: 14C0-302
MCM

MWP_GUN 14C0-302 MWPT-CA 14C0-302
MWGT-AA 14C0-302

PIP SUMMARY

☐ Time Mark Every 60 S



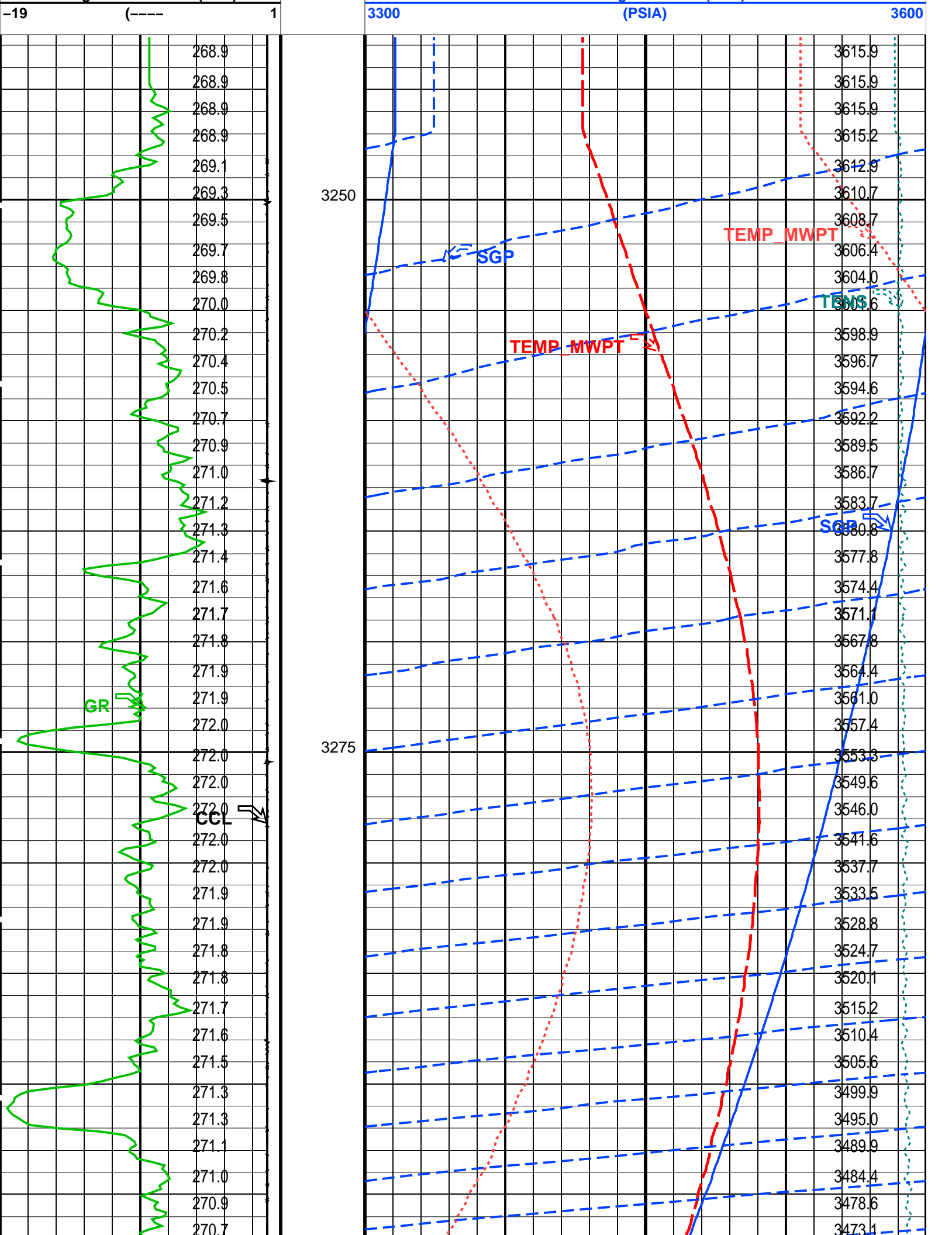


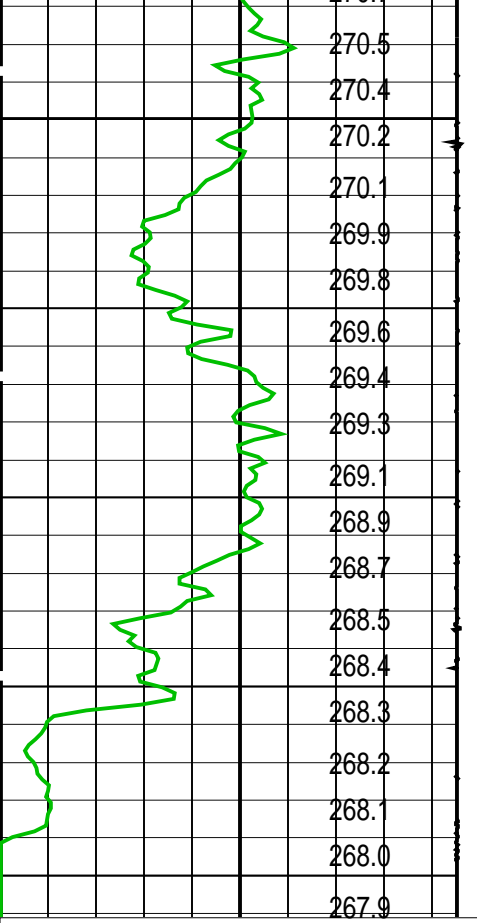
| | | | |
|--------------------------------------|------------|-----------------------------|-------------|
| Casing Collar Locator (CCL) | | Strain Gauge Pressure (SGP) | |
| -19 | (---- 1 | 3750 | (PSIA) 3850 |
| Gamma Ray (GR) | | Temperature (TEMP_MWPT) | |
| 0 | (GAPI) 150 | 268 | (DEGF) 272 |
| CCL From CCL to T1 | | Strain Gauge Pressure (SGP) | |
| | | 0 | (PSIG) 10 |
| Temperature (TEMP_MWPT) (DEGF) | | Temperature (TEMP_MWPT) | |
| | | 0 | (DEGF) 5 |
| | | Tension (TENS) | |
| | | 0 | (LBF) 2500 |
| | | Pressure (SGP) | |
| | | (PSIA) | |

PIP SUMMARY

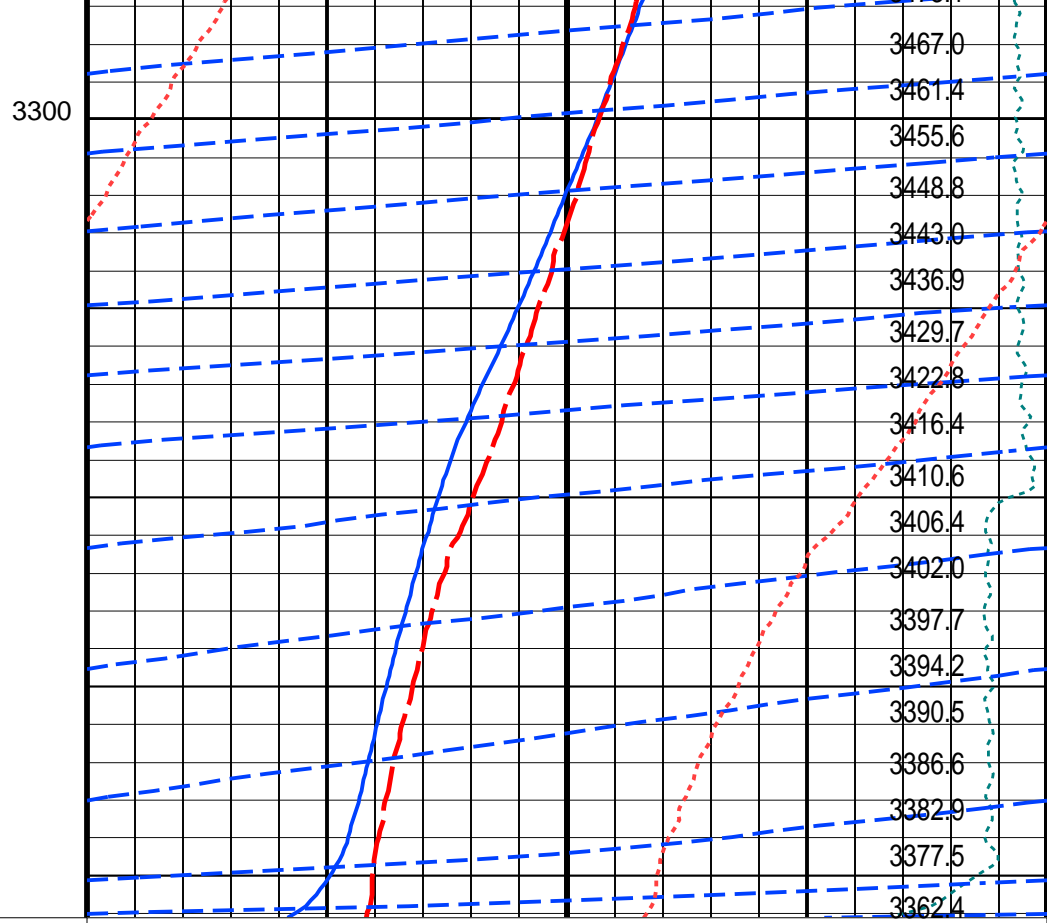
Time Mark Every 60 S

| Parameters | | |
|------------|-------------|-------|
| DLIS Name | Description | Value |





| | |
|--------------------------------------|-----|
| Casing Collar Locator (CCL) | |
| -19 | 1 |
| Gamma Ray (GR) | |
| 0 | 150 |
| CCL From CCL to T1 | |
| Temperature (TEMP_MWPT) (DEGF) | |



| | |
|-----------------------------|------|
| Strain Gauge Pressure (SGP) | |
| 3300 | 3600 |
| (PSIA) | |
| Temperature (TEMP_MWPT) | |
| 265 | 275 |
| (DEGF) | |
| Strain Gauge Pressure (SGP) | |
| 0 | 10 |
| (PSIG) | |
| Temperature (TEMP_MWPT) | |
| 0 | 5 |
| (DEGF) | |
| Tension (TENS) | |
| 0 | 2500 |
| (LBF) | |
| Pressure (SGP) | |
| (PSIA) | |

PIP SUMMARY

Time Mark Every 60 S

Parameters

| DLIS Name | Description | Value |
|---|--|----------|
| MWPT-CA: MEASUREMENT WHILE PERFORATING TOOL | | |
| DEVI_FL_CORR | Deviation Angle for Flow Line Correction | 0 DEG |
| FLD | Flow Line Density | 1 G/C3 |
| MWPT_NULL_SOURCE | MWPT NULL Temperature Source | TEMS |
| MWPT_NULL_TEMP | MWPT NULL Temperature | 0.0 DEGC |
| System and Miscellaneous | | |
| DO | Depth Offset for Playback | 1.7 M |
| PP | Playback Processing | NORMAL |

Format: MWP Vertical Scale: 1:200

Graphics File Created: 14-Jun-2007 10:28

OP System Version: 14C0-302
MCM

| | | | |
|---------|----------|---------|----------|
| MWP_GUN | 14C0-302 | MWPT-CA | 14C0-302 |
| MWGT-AA | 14C0-302 | | |

Input DLIS Files

Input DLIS Files

DEFAULT PERFO_021LUP FN:20 PRODUCER 14-Jun-2007 10:12 3319.4 M 3242.8 M

Output DLIS Files

DEFAULT PERFO_023PUP FN:22 PRODUCER 14-Jun-2007 10:28



Calibration Listing

MAXIS Field Log

MWPT Strain Gauge

Serial Number: 195151
Range: 10K
Calibration Date: 13/03/07
Mean Quadratic Deviation: 1.9475
Offset: 0.0000 PSI
Calibration Pressure Unit: PSI
Calibration Temperature Unit: DEGF

| | G | H | I | J |
|---|----------------|----------------|----------------|----------------|
| 0 | -3.674452e+002 | 9.972428e-001 | 1.261397e-007 | 1.962170e-012 |
| 1 | -4.322207e-001 | 9.591706e-005 | -6.090547e-009 | -3.317757e-013 |
| 2 | 2.557168e-003 | -4.671183e-007 | -6.565159e-012 | 3.504052e-015 |
| 3 | -4.416192e-006 | 6.080871e-010 | 4.228186e-014 | 0.000000e+000 |

Company: **Esso Australia Pty Ltd.**



Well: **A-10a**
Field: **Bream A**
Rig : **Prod4 / Crane**
Country: **Australia**

MWPT 2 1/8" Phased
Powerjet Perforation
Record