



7136 South Yale Avenue, Suite 414
Tulsa, Oklahoma 74136-6378

phone 918.925.9739

fax 866.534.4559

WWW.HZMUD.COM

Customer Information

Operator: Noble Energy Inc.
1625 Broadway
Suite 2200
Denver, Colorado 80202

Geologist: Renee Clackler
Noble Energy Inc.

Mud Logging Details

Logger: Sam Stelzer &
Scott Haney

Log Interval: 6700' MD to 16964' MD

Start Date: June 28, 2015

Release Date: July 4, 2015

Well Information

Well Name: Wells Ranch State A36-625
Horizontal

Location: 31-T6N-R63W
1574' FSL, 390' FEL

County: Weld
State: Colorado

Drilling Rig: H&P 321

Total Depth: 16964' MD

TD Date: July 4, 2015

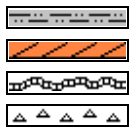
Formation: Niobrara C Chalk

KB Elevation: 4689'

GR Elevation: 4659'

API Number: 05-123-41507-0000

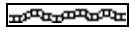
ROCK TYPES



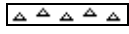
Siltysh



Anhy



Bent



Cht



Clyst



Coal



Congl



Dol



Gyp



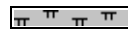
Cmnt



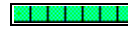
Lmst



Meta



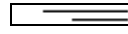
Mrlst



Salt



Shale



Shcol



Shgy



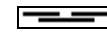
Slst



Ss



Till



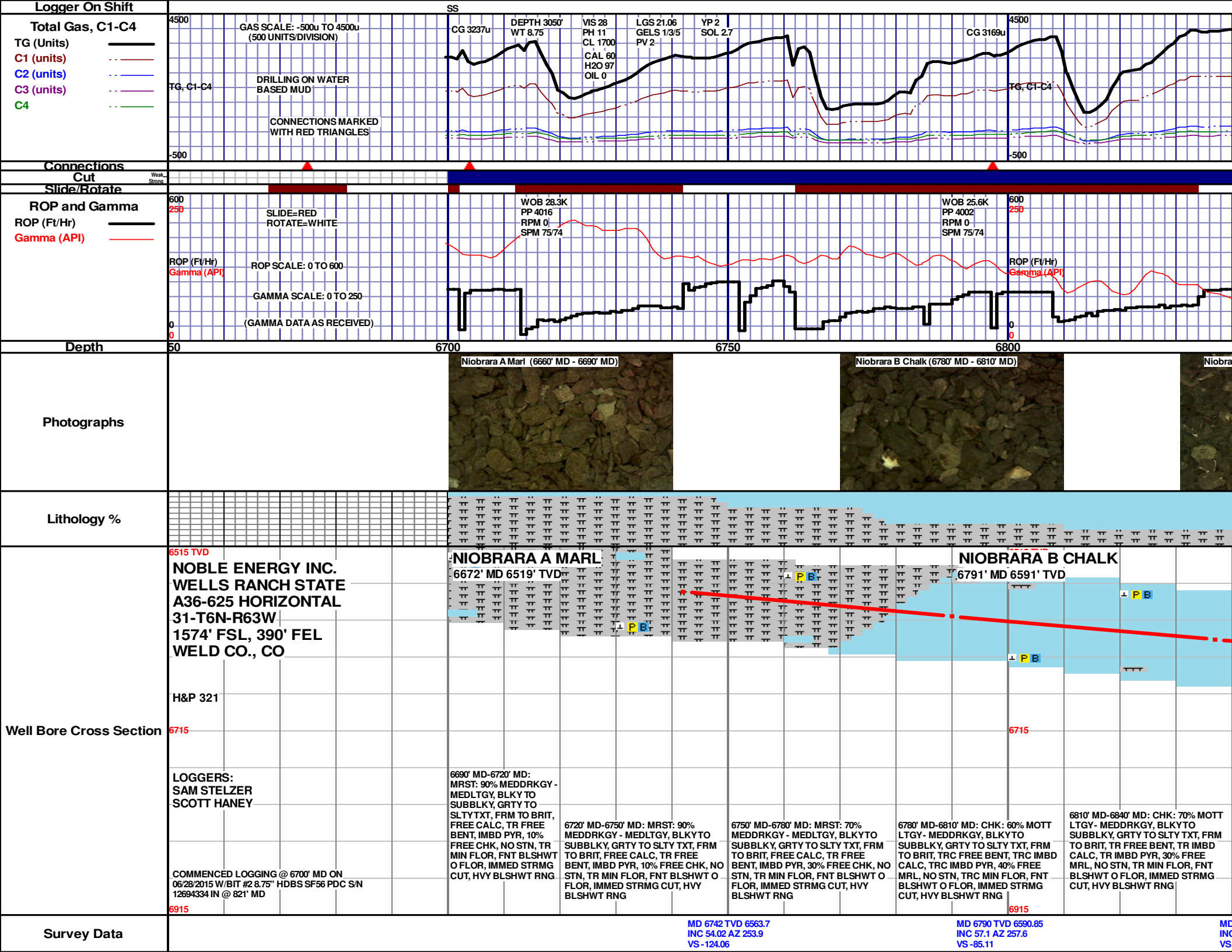
Carbonaceous s

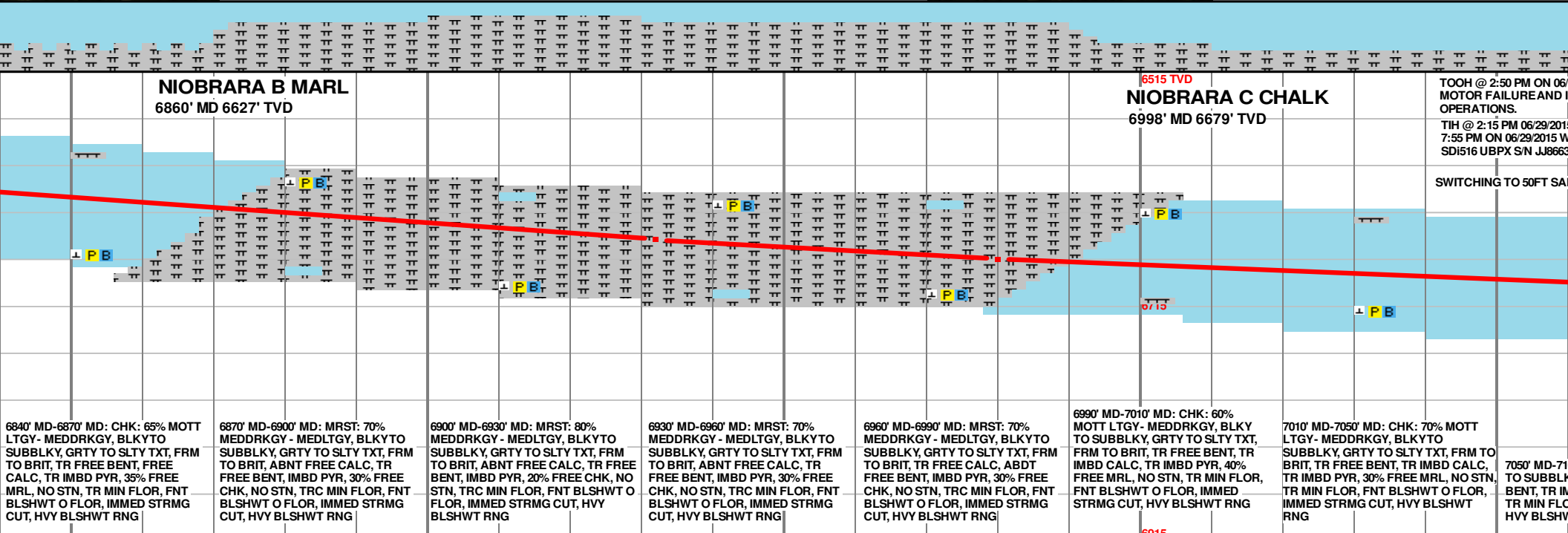
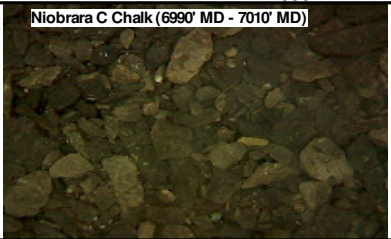
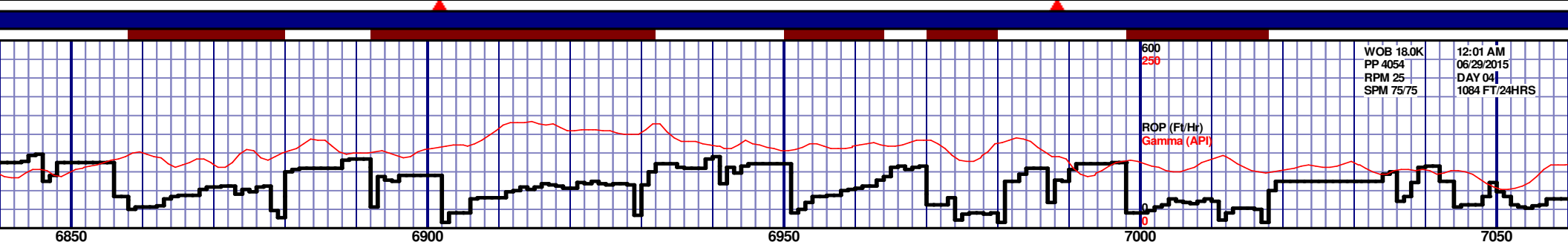
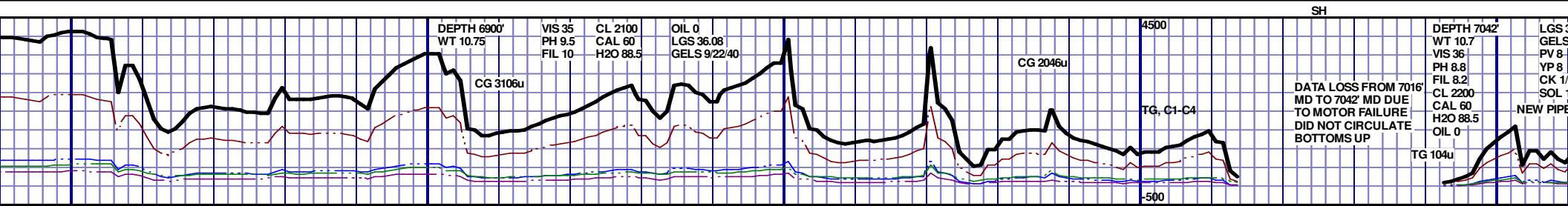


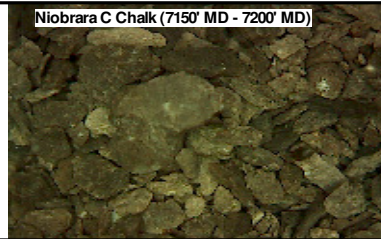
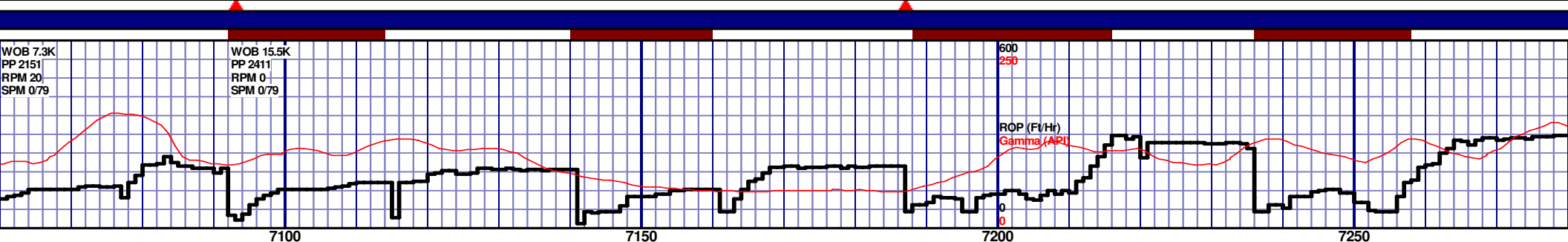
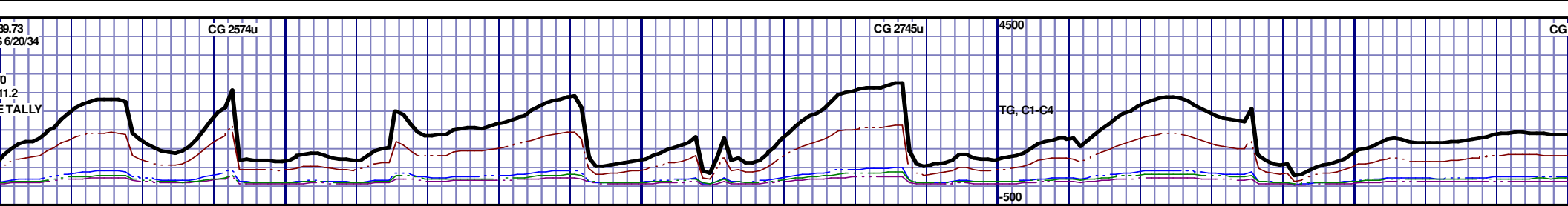
Chk



Nosmpl



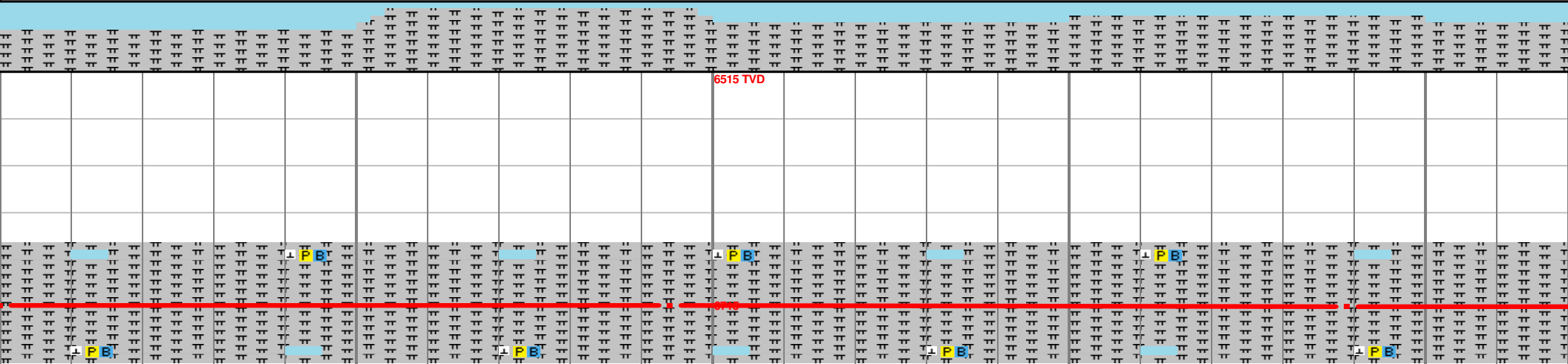
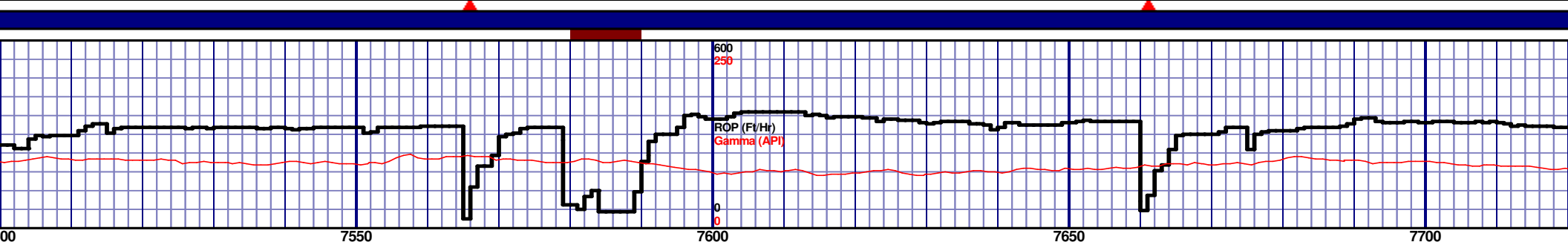




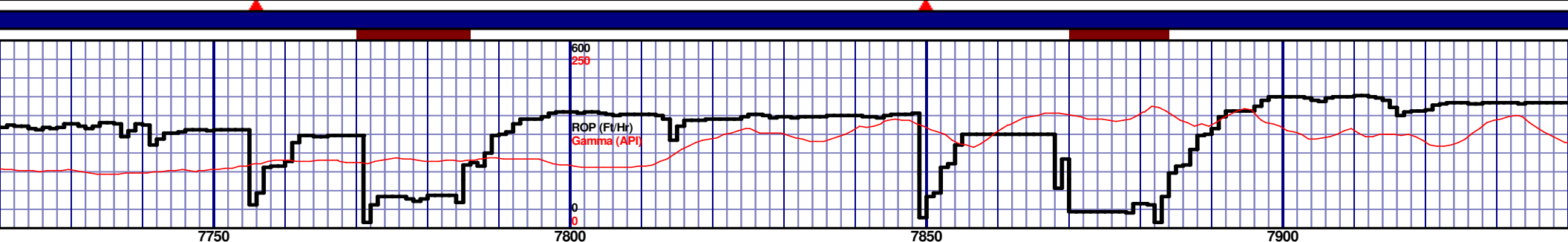
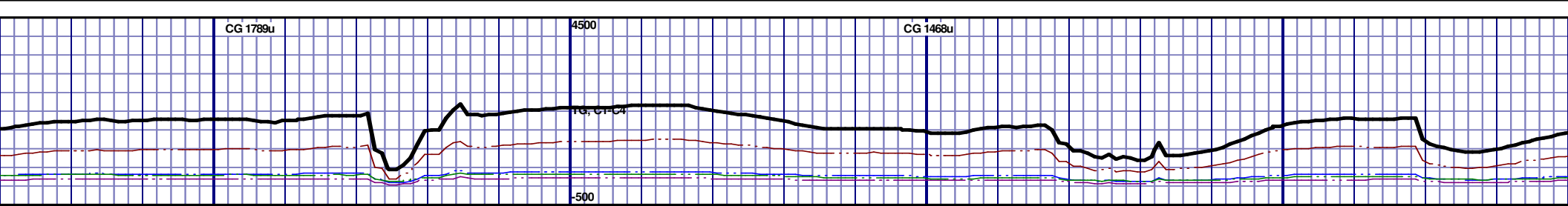
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| 28/15 @ 7042' MD DUE TO INTERMEDIATE CASING | | | | | | | | | |
| 5. RESUMED DRILLING @ 7042' MD | | | | | | | | | |
| SAMPLE INTERVAL | | | | | | | | | |
| 00' MD: CHK: 70% MOTT LTGY - MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD PYR, 30% FREE MRL, NO STN, NO MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 7100' MD-7150' MD: CHK: 75% MOTT LTGY - MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD PYR, 25% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 7150' MD-7200' MD: CHK: 90% MOTT LTGY - MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR IMBD PYR, 10% FREE MRL, NO STN, NO MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 7200' MD-7250' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 7250' MD-7300' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD PYR, 30% FREE MRL, NO STN, NO MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |

MD 7121 TVD 6708.78
INC 81.24 AZ 271.67
VS 220.49

MD 7215 TVD 6717.64
INC 87.94 AZ 271.74
VS 313.54



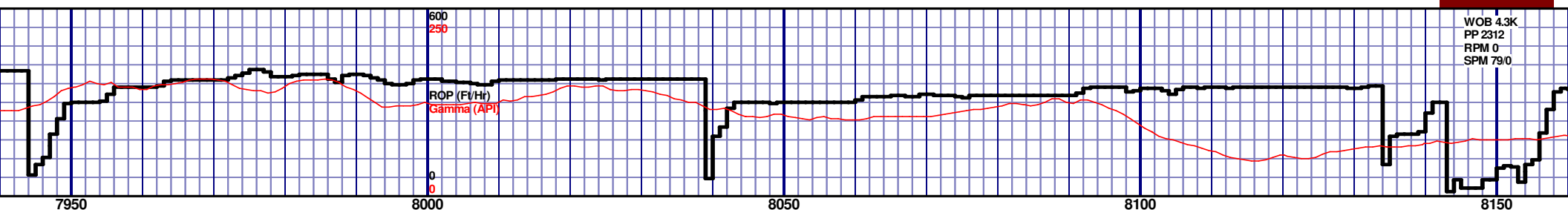
7700' MD-7750' MD: MRST
TO SUBBLKY, GRTY TO S
CALC, TR FREE BENT, IM
MIN FLOR, FNT BLSHWT
BLSHWT RNG



| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| 7750' MD-7800' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 7800' MD-7850' MD: MRST: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 10% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 7850' MD-7900' MD: MRST: 95% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 5% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 7900' MD-7950' MD: MRST: 95% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 5% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |

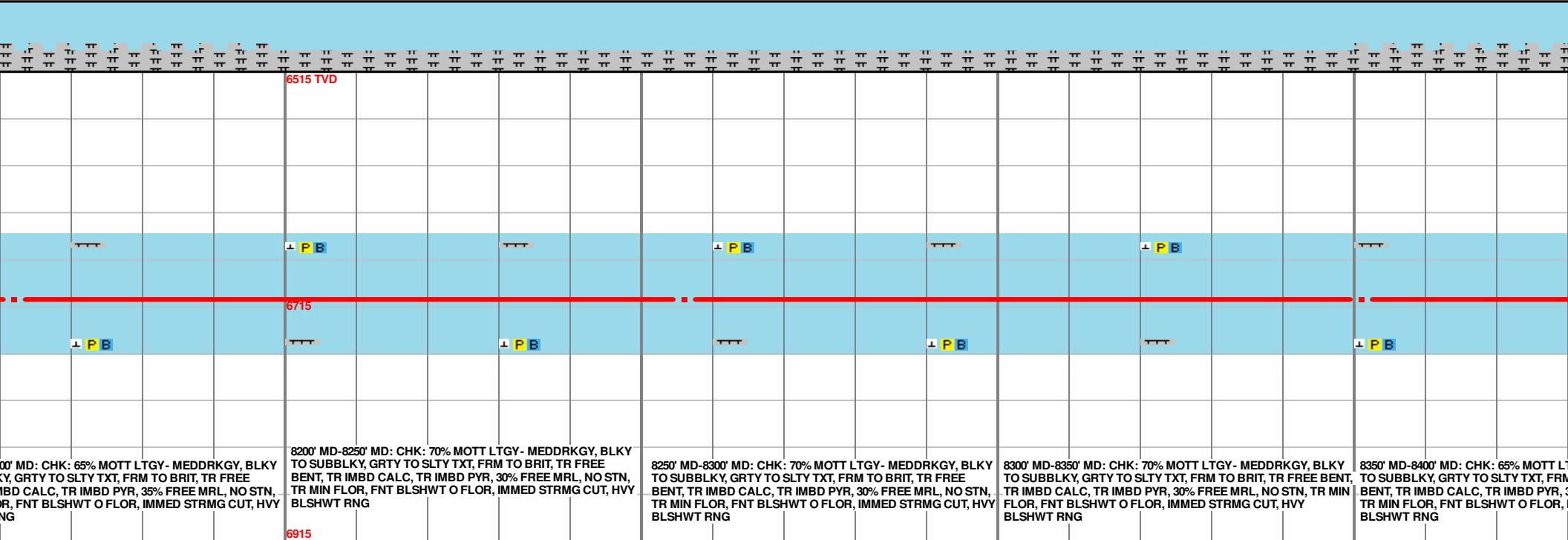
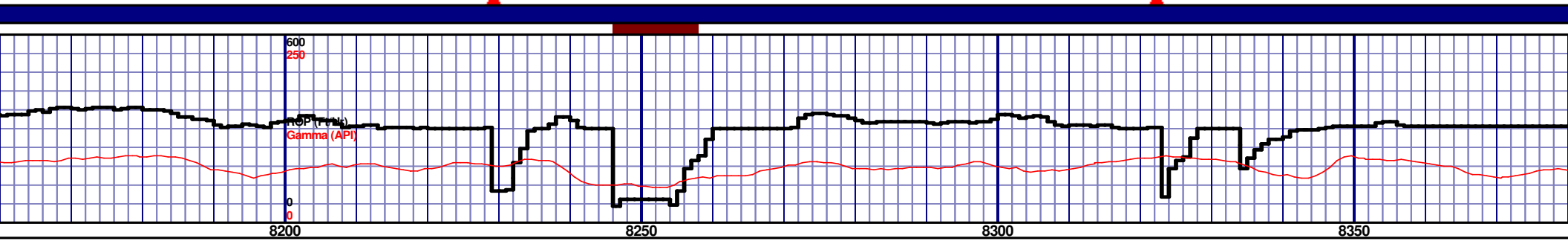
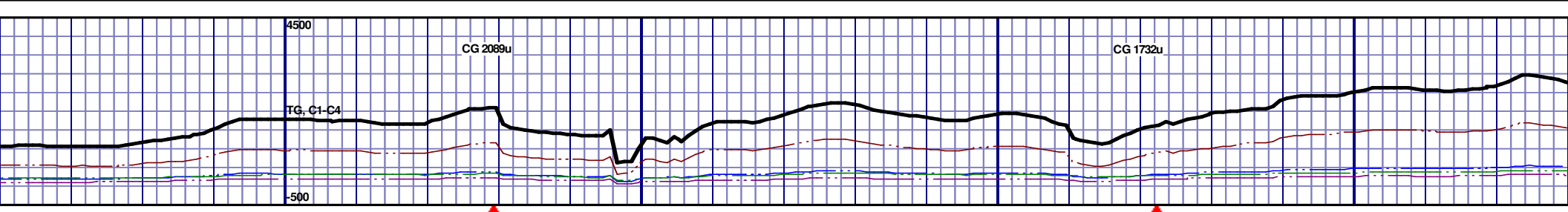
MD 7783 TVD 6714.69
INC 90.89 AZ 270.57
VS 879.49

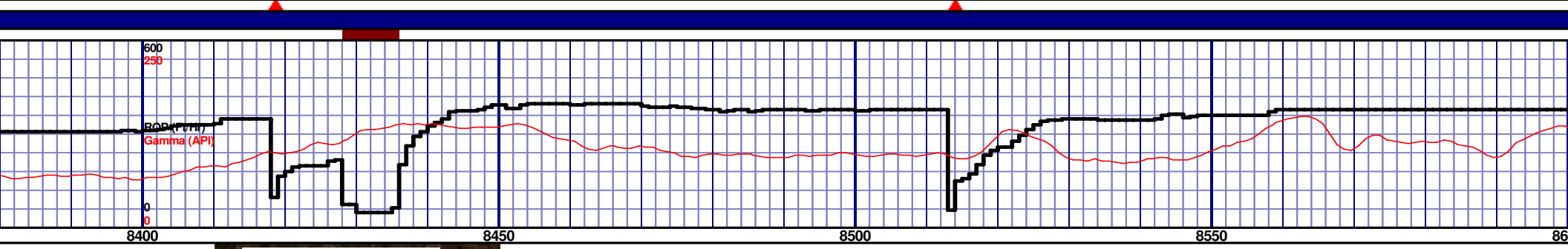
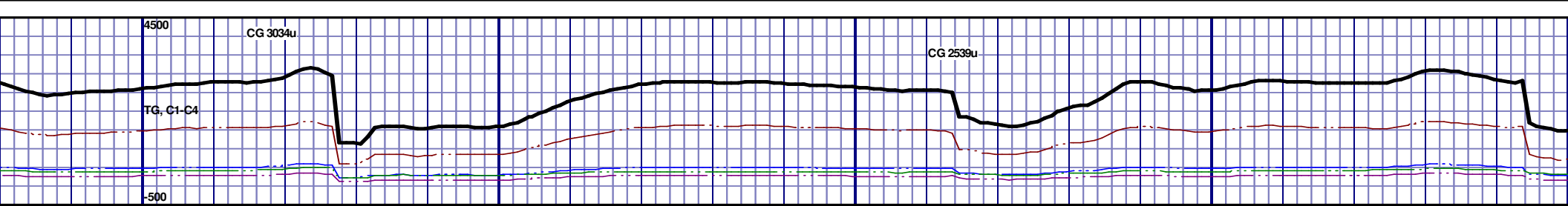
MD 7878 TVD 6713.26
INC 90.83 AZ 269.7
VS 974.22

[illegible]

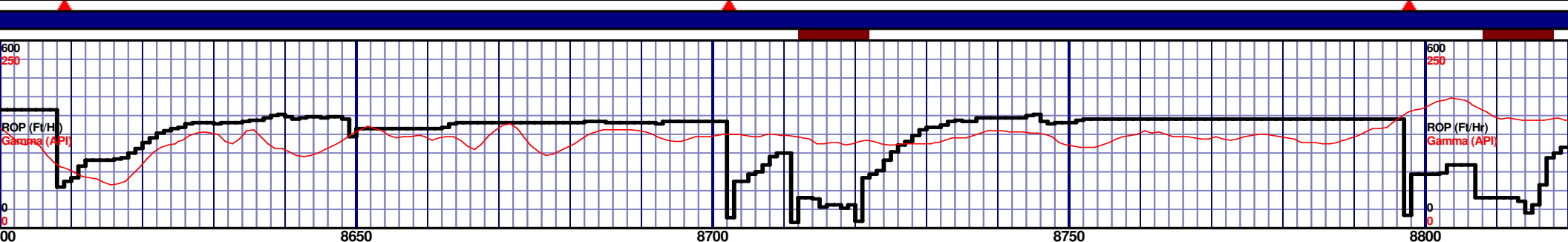
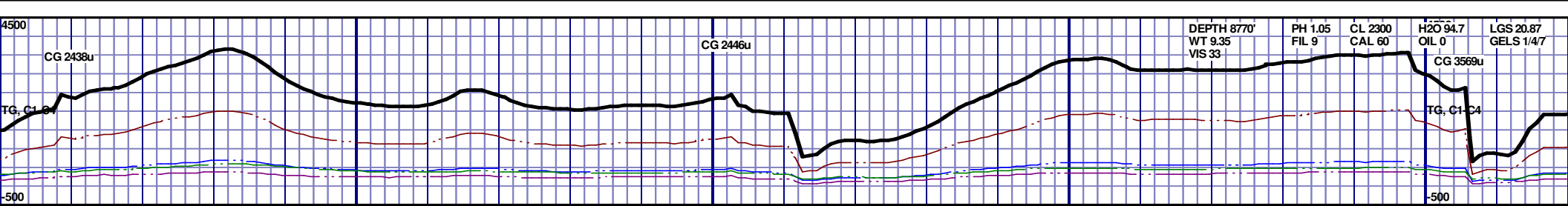
MD 7973 TVD 6711.88
INC 90.83 AZ 269.34
VS 1069.02

MD 8067 TVD 6710.39
INC 90.99 AZ 269.35
VS 1162.84





| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| 6515 TVD | | | | | | | | | |
| NIOBRARA B MARL | | | | | | | | | |
| 8435' MD 6708' TVD | | | | | | | | | |
| 8400' MD-8450' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 8450' MD-8500' MD: MRST: 65% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 35% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 8500' MD-8550' MD: MRST: 65% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 35% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 8550' MD-8600' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 8600' MD-8650' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |

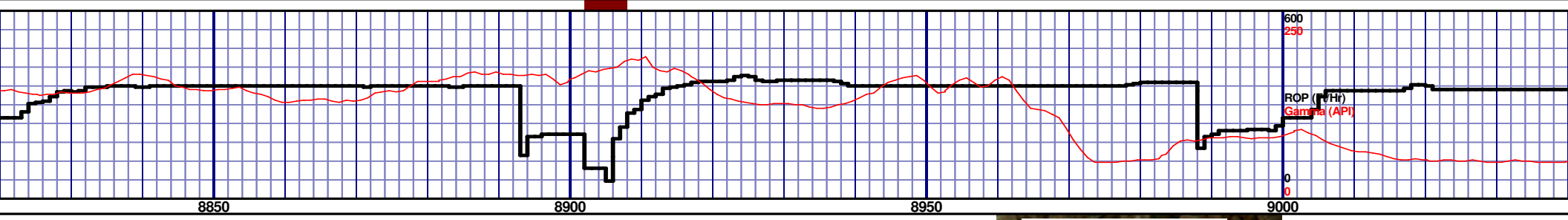
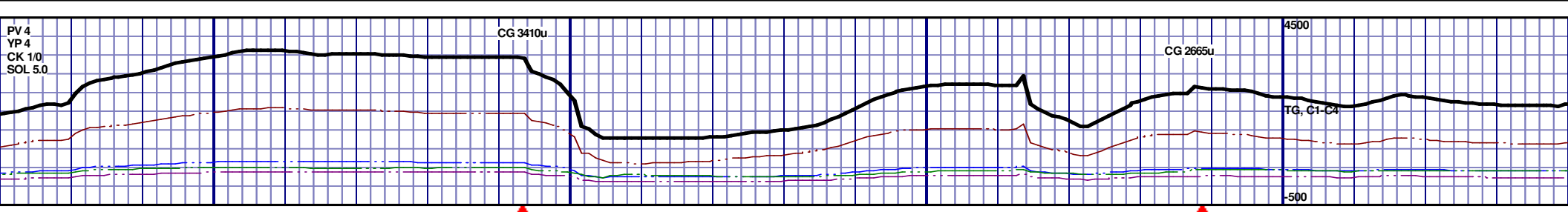


| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 6515 TVD | | | | | | | | | | 6515 TVD | | | | | | | | | |
| 6715 | | | | | | | | | | 6715 | | | | | | | | | |
| 8600' MD-8650' MD: MRST: 75% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 25% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | 8650' MD-8700' MD: MRST: 80% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 20% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 8700' MD-8750' MD: MRST: 80% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 20% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | 8750' MD-8800' MD: MRST: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 10% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 8800' MD-8850' MD: MRST: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 10% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | 8850' MD-8900' MD: MRST: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 10% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |

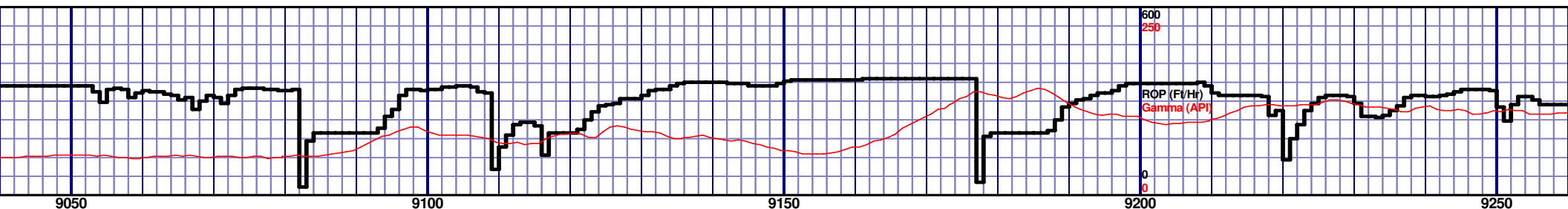
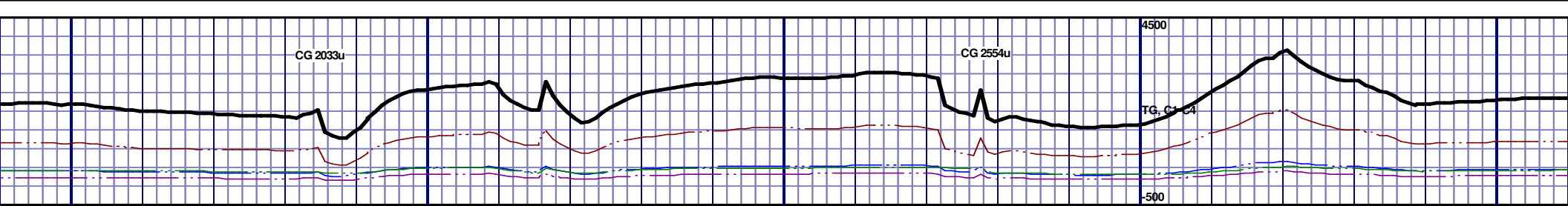
MD 8635 TVD 6709.32
INC 90.77 AZ 269.38
VS 1729.86

MD 8730 TVD 6708.64
INC 90.06 AZ 269.37
VS 1824.68

PV 4
YP 4
CK 1/0
SOL 5.0



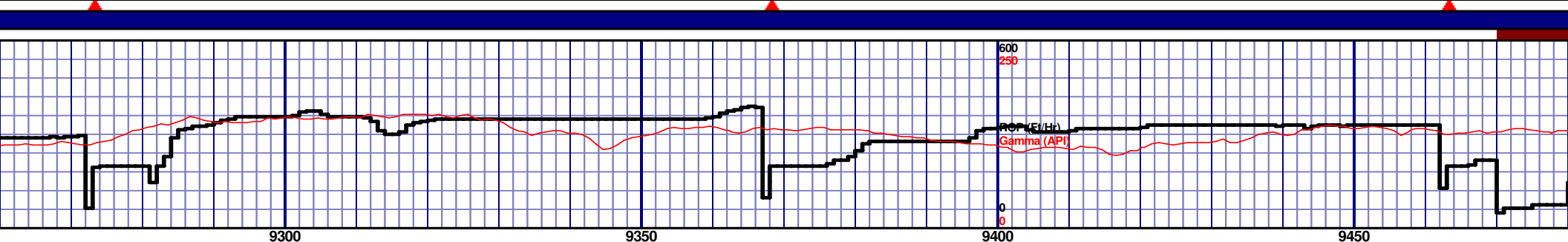
| | | | | | | | |
|--|--|--|--|----------|--|--|--|
| | | | | 6515 TVD | | | |
| | | | | 6715 | | | |
| | | | | 6915 | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |



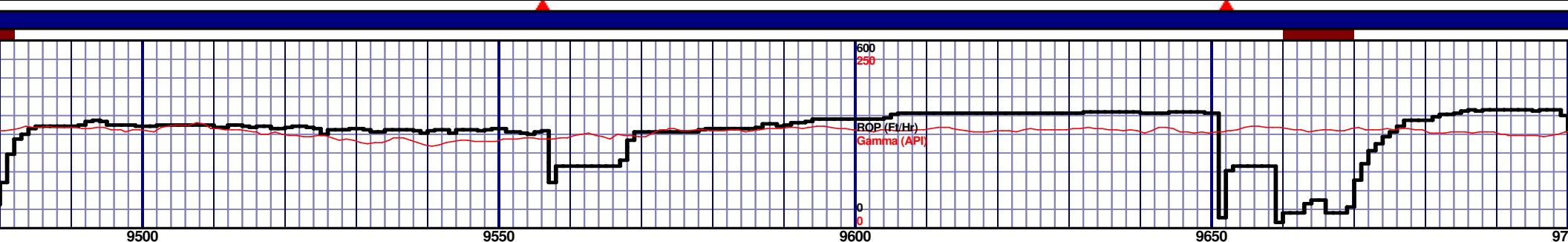
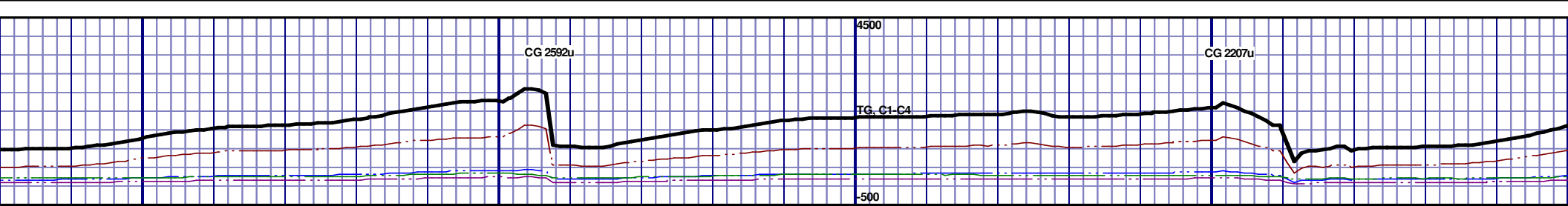
| | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|
| NIOBRARA B MARL 9181' MD 6711' TVD | | | | | | | | | |
| 9050' MD-9100' MD: CHK: 85% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 15% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 9100' MD-9150' MD: CHK: 65% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 35% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 9150' MD-9200' MD: MRST: 65% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 35% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 9200' MD-9250' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 9250' MD-9300' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | |

MD 9109 TVD 6710.35
INC 89.6 AZ 268.37
VS 2203.24

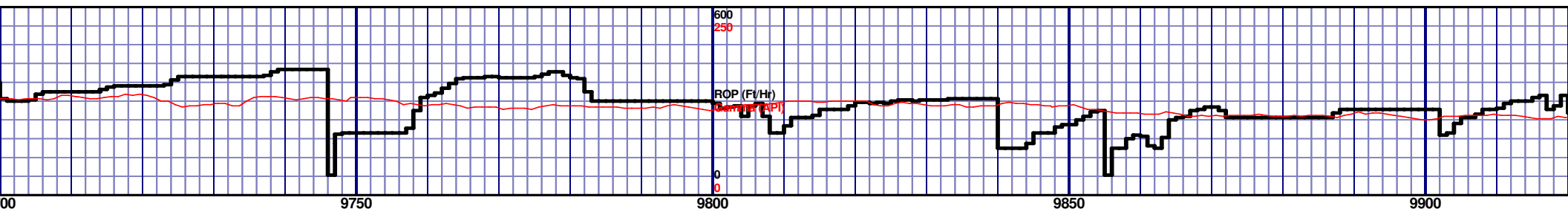
MD 9204 TVD 6711.14
INC 89.45 AZ 268.41
VS 2296.14



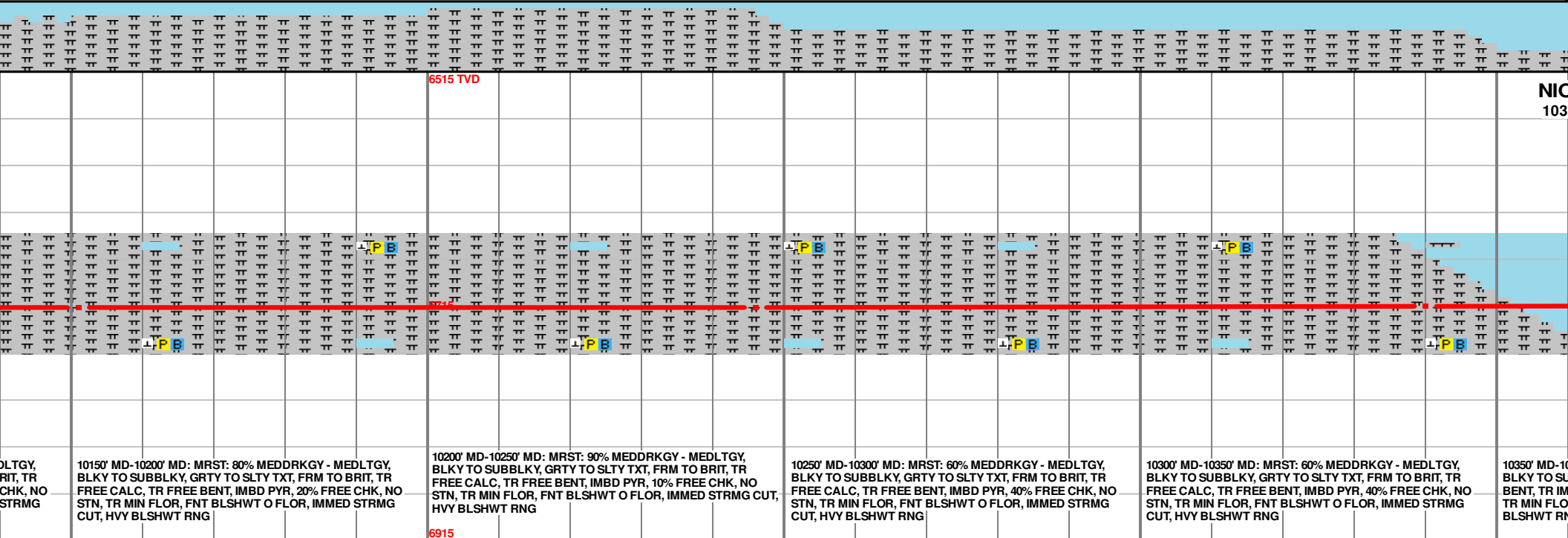
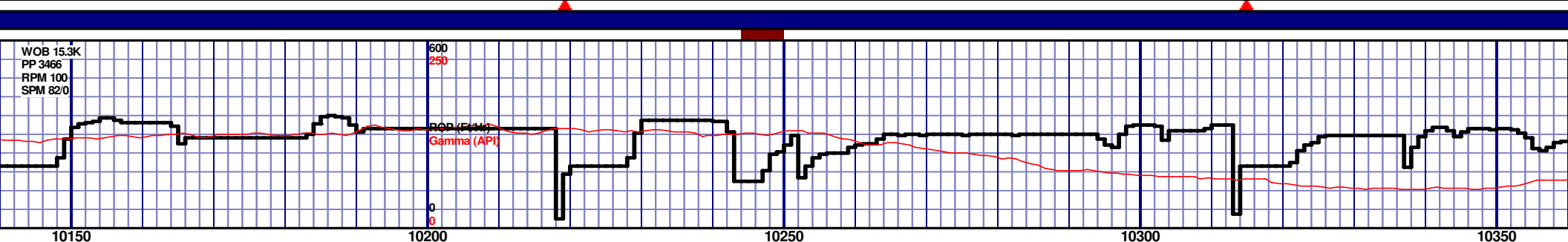
| | |
|--|--|
| MD 9299 TVD 6712.31 INC 89.14 AZ 269.05 VS 2393.02 | MD 9393 TVD 6713.97 INC 88.83 AZ 269.47 VS 2496.84 |
|--|--|



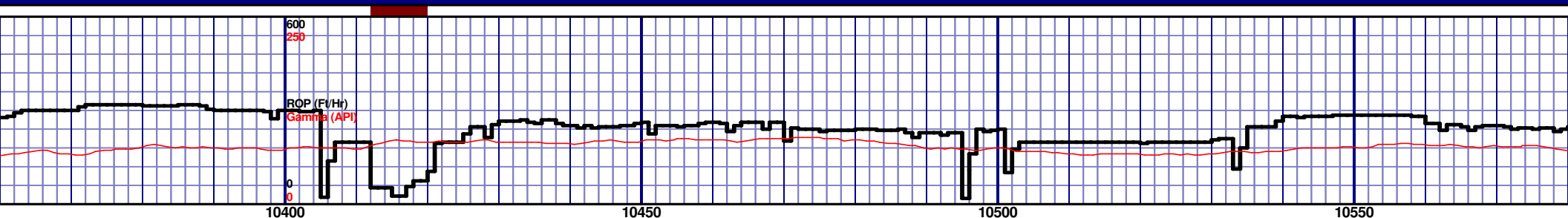
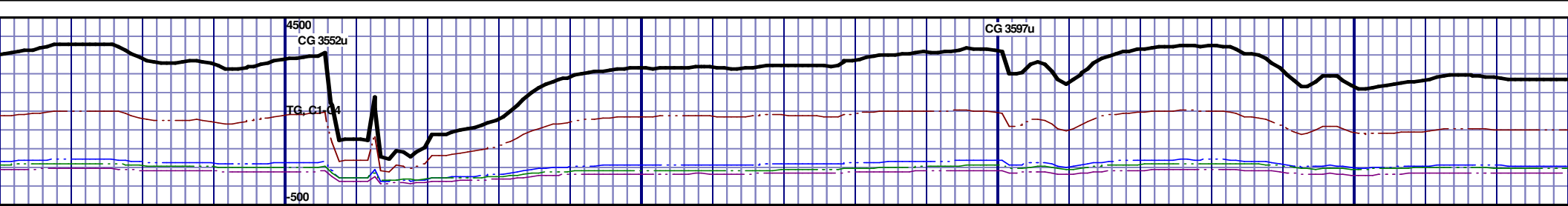
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|
| 9500' MD-9550' MD: MRST: 80% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 20% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | 9550' MD-9600' MD: MRST: 85% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 15% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | 9600' MD-9650' MD: MRST: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 10% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | 9650' MD-9700' MD: MRST: 95% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 5% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|



| | | | | |
|---|---|---|--|--|
| 9700' MD-9750' MD: MRST: 95% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 5% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 9750' MD-9800' MD: MRST: 95% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 5% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 9800' MD-9850' MD: MRST: 95% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 5% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 9850' MD-9900' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 9900' MD-9950' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG |
|---|---|---|--|--|

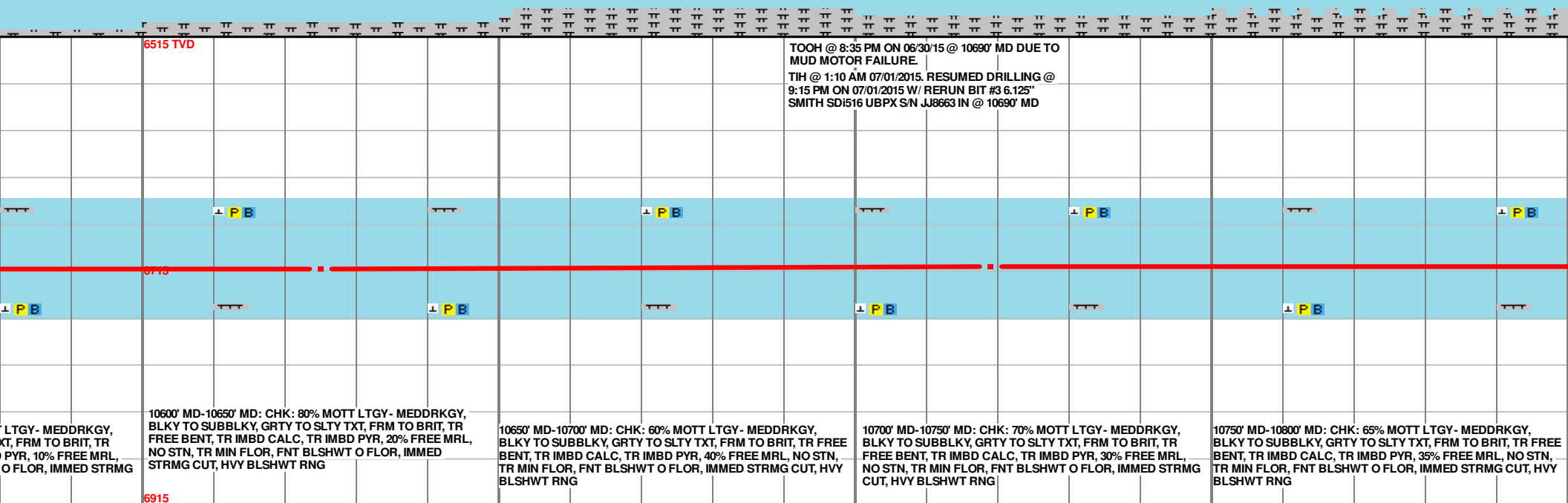
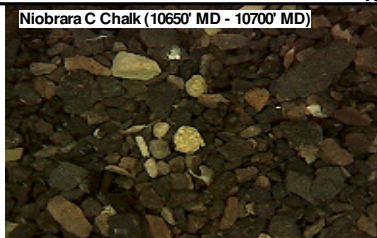
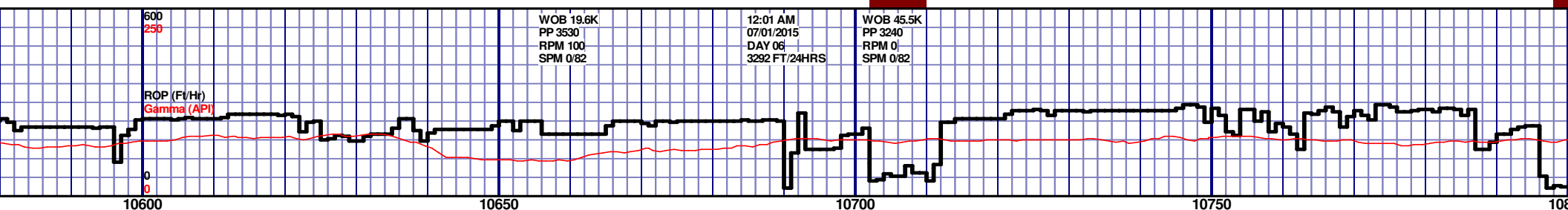
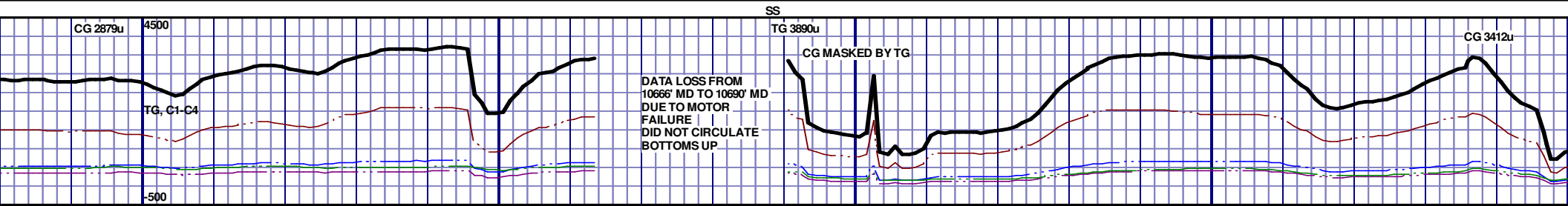


MD 10340 TVD 6714.8
INC 90.92 AZ 268.13
VS 3432.99



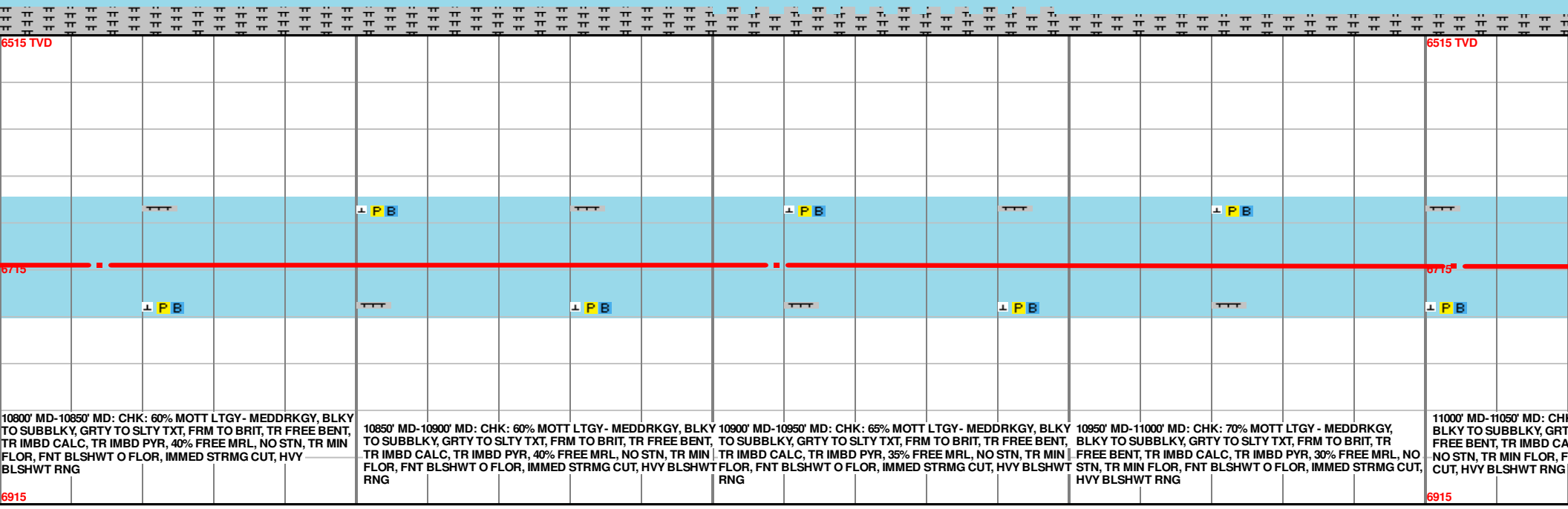
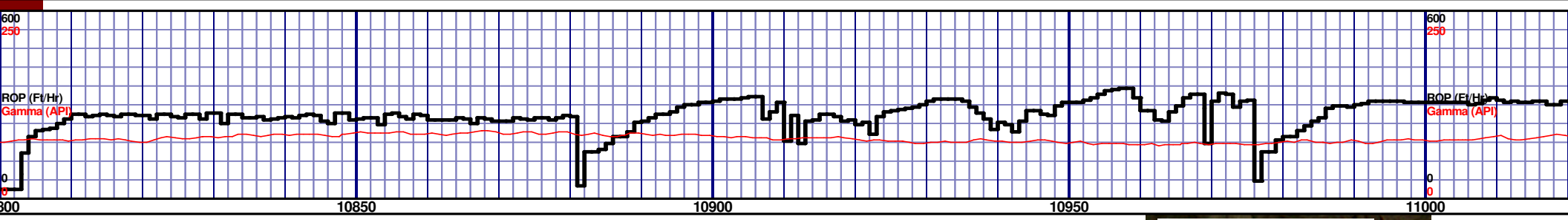
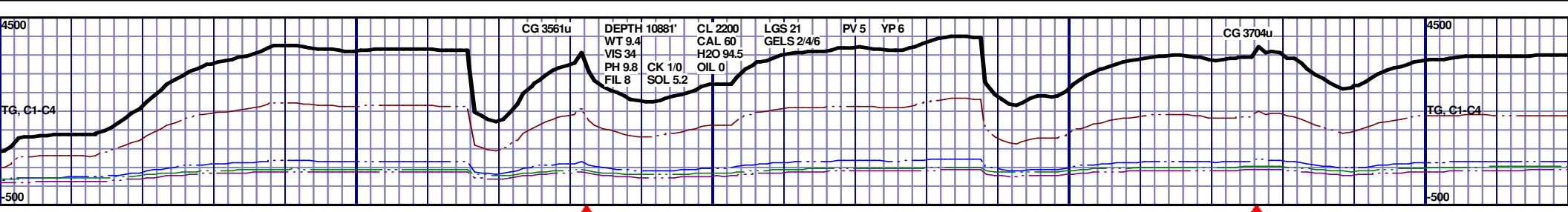
NIORARA C CHALK 55' MD 6714' TVD

| | | | | |
|---|--|--|--|--|
| <p>0400' MD: CHK: 70% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 30% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG</p> | <p>10400' MD-10450' MD: CHK: 60% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG</p> | <p>10450' MD-10500' MD: CHK: 80% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 20% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG</p> | <p>10500' MD-10550' MD: CHK: 90% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 10% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG</p> | <p>10550' MD-10600' MD: CHK: 90% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 10% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG</p> |
|---|--|--|--|--|



MD 10625 TVD 6712.59
INC 90.83 AZ 267.87
VS 3717.79

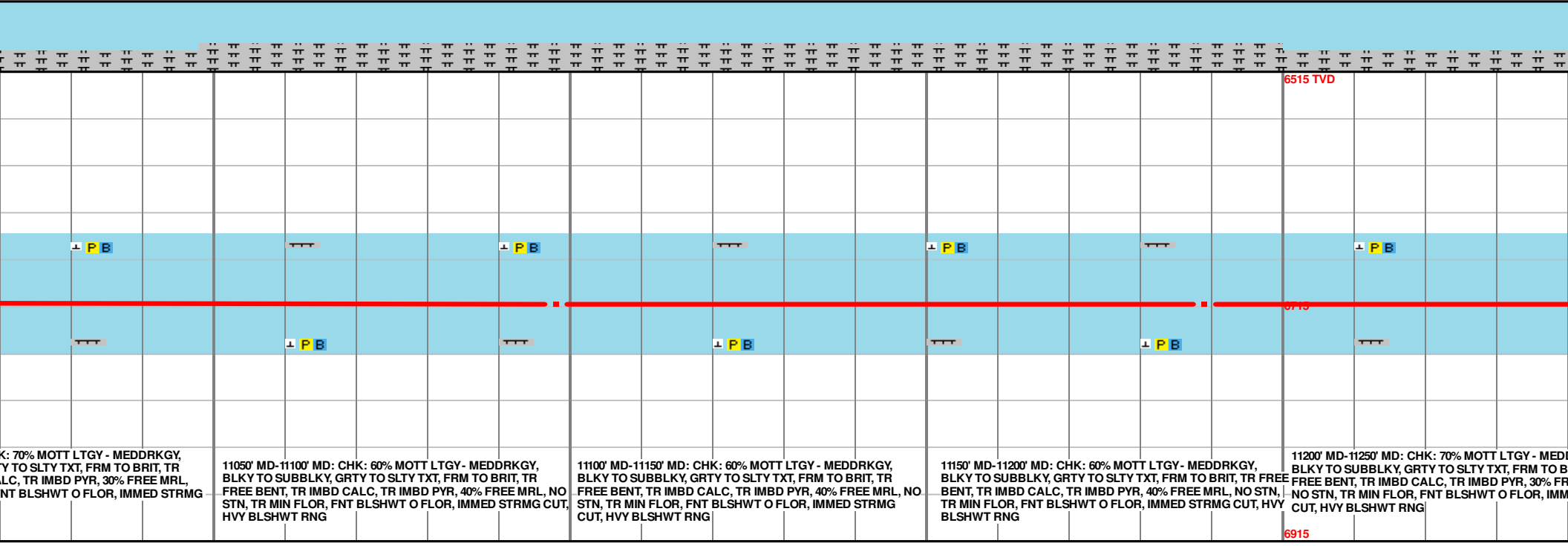
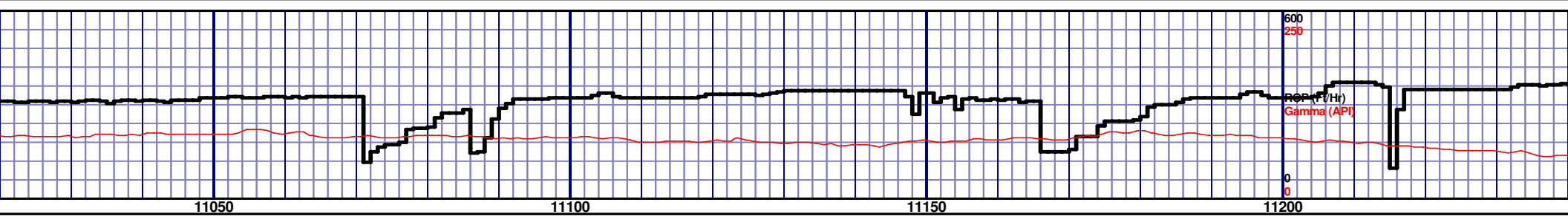
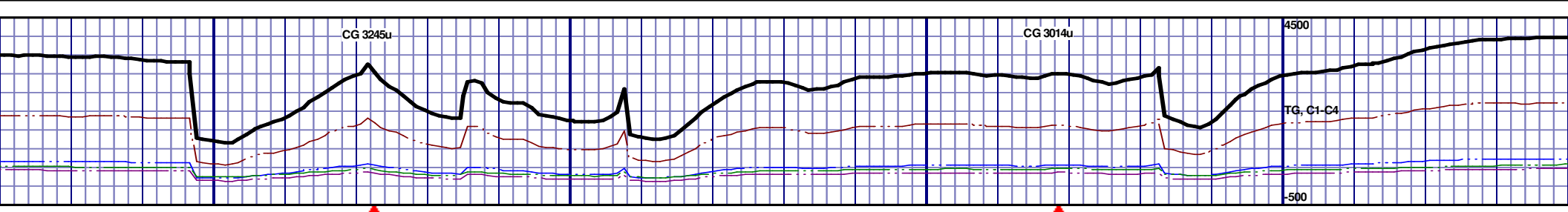
MD 10719 TVD 6711.4
INC 90.62 AZ 268.55
VS 3811.71



MD 10814 TVD 6711.09
INC 89.75 AZ 269.34
VS 3906.57

MD 10909 TVD 6711.33
INC 89.97 AZ 269.59
VS 4001.38

MD 11004 TVD 6712.0
INC 89.17 AZ 268.66
VS 4096.23



CHK: 70% MOTT LTGY - MEDDRKGY,
Y TO SLTY TXT, FRM TO BRIT, TR
LC, TR IMBD PYR, 30% FREE MRL,
NT BLSHWT O FLOR, IMMED STRMG

11050' MD-11100' MD: CHK: 60% MOTT LTGY - MEDDRKGY,
BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR
FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO
STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT,
HVY BLSHWT RNG

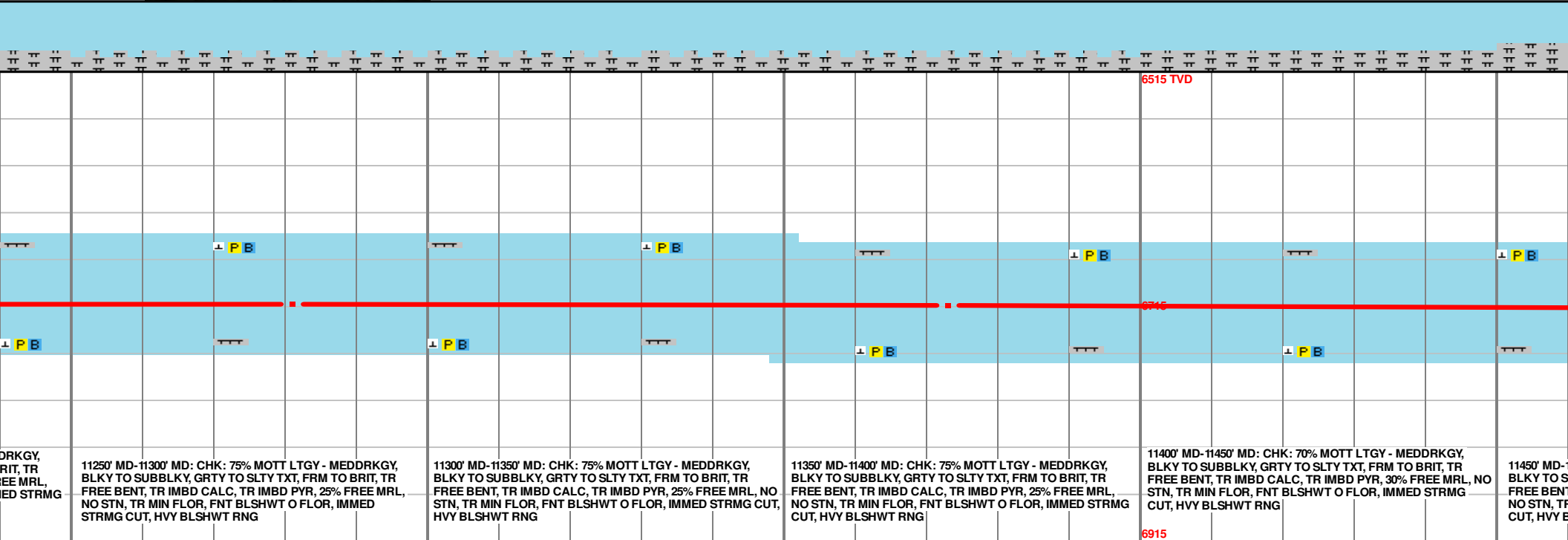
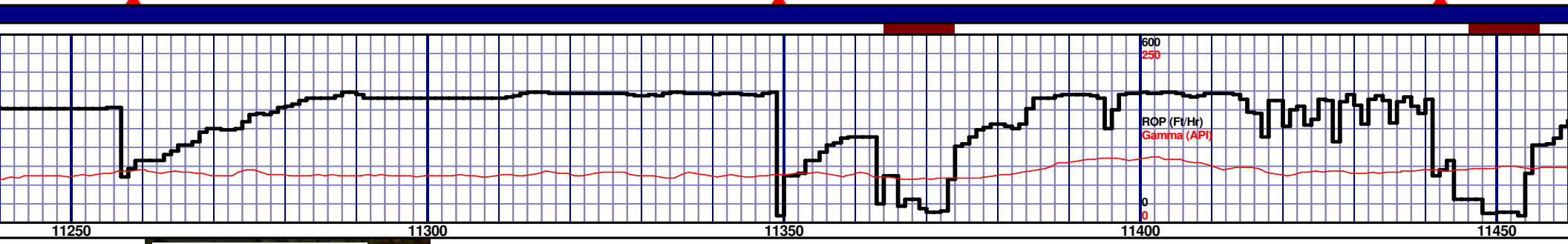
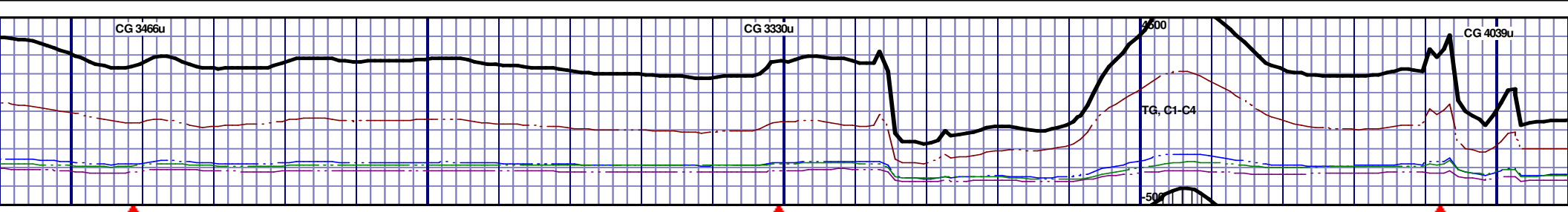
11100' MD-11150' MD: CHK: 60% MOTT LTGY - MEDDRKGY,
BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR
FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO
STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG
CUT, HVY BLSHWT RNG

11150' MD-11200' MD: CHK: 60% MOTT LTGY - MEDDRKGY,
BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE
BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN,
TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY
BLSHWT RNG

11200' MD-11250' MD: CHK: 70% MOTT LTGY - MEDDRKGY,
BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE
BENT, TR IMBD CALC, TR IMBD PYR, 30% FREE MRL, NO STN,
TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY
BLSHWT RNG

MD 11098 TVD 6713.02
INC 89.63 AZ 268.69
VS 4190.11

MD 11189 TVD 6713.27
INC 90.06 AZ 269.38
VS 4280.98



ORKGY,
RIT, TR
FREE MRL,
IED STRMG

11250' MD-11300' MD: CHK: 75% MOTT LTGY - MEDDRKGY,
BLKY TO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, TR
FREE BENT, TR IMBD CALC, TR IMBD PYR, 25% FREE MRL,
NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED
STRMG CUT, HVY BLSHWT RNG

11300' MD-11350' MD: CHK: 75% MOTT LTGY - MEDDRKGY,
BLKY TO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, TR
FREE BENT, TR IMBD CALC, TR IMBD PYR, 25% FREE MRL, NO
STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT,
HVY BLSHWT RNG

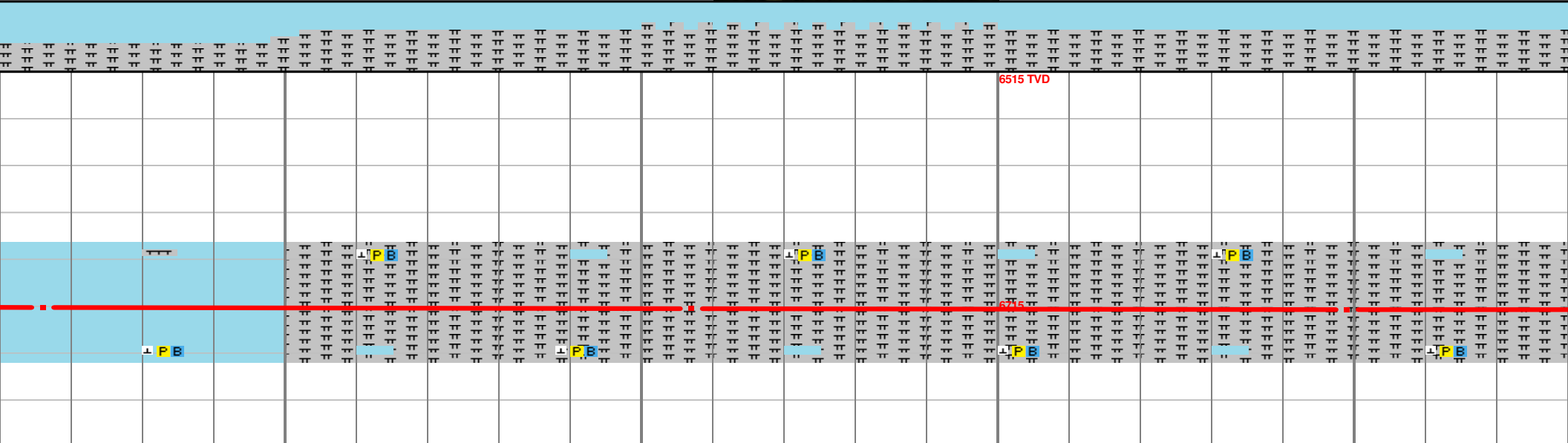
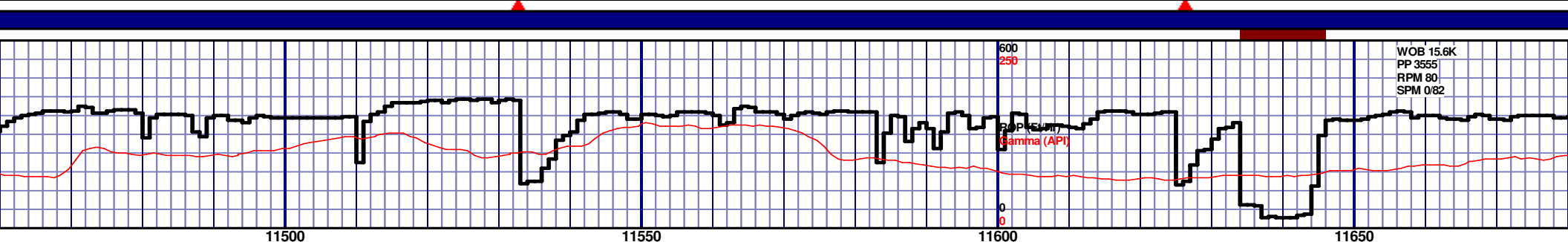
11350' MD-11400' MD: CHK: 75% MOTT LTGY - MEDDRKGY,
BLKY TO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, TR
FREE BENT, TR IMBD CALC, TR IMBD PYR, 25% FREE MRL,
NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG
CUT, HVY BLSHWT RNG

11400' MD-11450' MD: CHK: 70% MOTT LTGY - MEDDRKGY,
BLKY TO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, TR
FREE BENT, TR IMBD CALC, TR IMBD PYR, 30% FREE MRL, NO
STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG
CUT, HVY BLSHWT RNG

11450' MD-
BLKY TO S
FREE BENT
NO STN, TR
CUT, HVY B

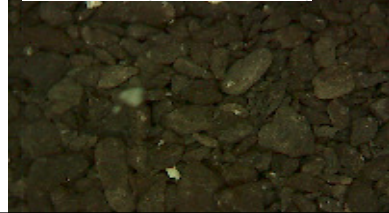
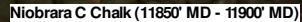
MD 11281 TVD 6712.85
INC 90.46 AZ 269.53
VS 4372.8

MD 11373 TVD 6713.87
INC 88.27 AZ 268.78
VS 4464.64

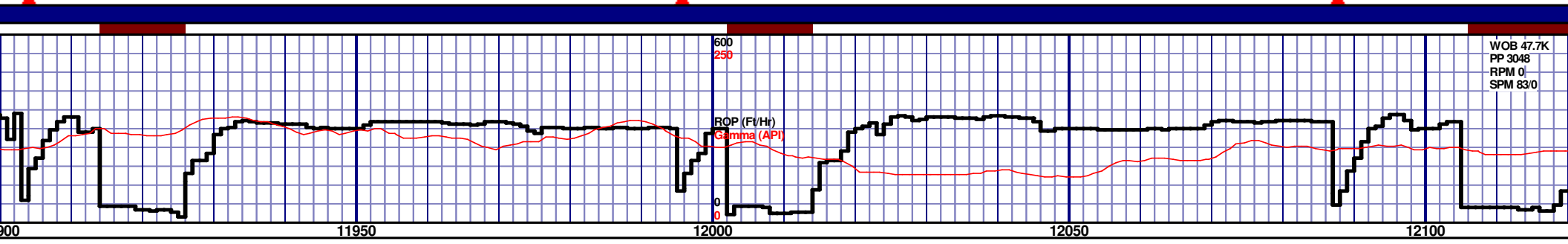
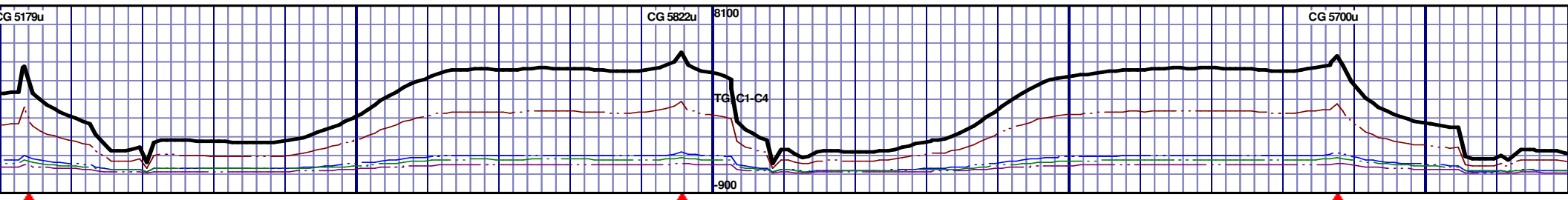


| | | | | |
|--|---|---|---|---|
| 11500' MD-CHK: 60% MOTT LTGY - MEDDRKGY, SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR MIN, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, R MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG BLSHWT RNG | 11500' MD-11550' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 11550' MD-11600' MD: MRST: 65% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 35% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 11600' MD-11650' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 11650' MD-11700' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG |
|--|---|---|---|---|

MD 11649 TVD 6717.9
INC 90.18 AZ 266.5
VS 4740.41

6515 TVD

6915

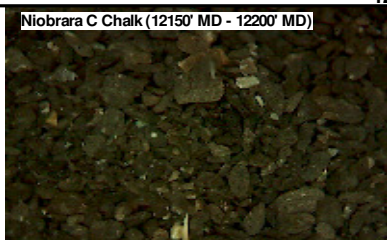
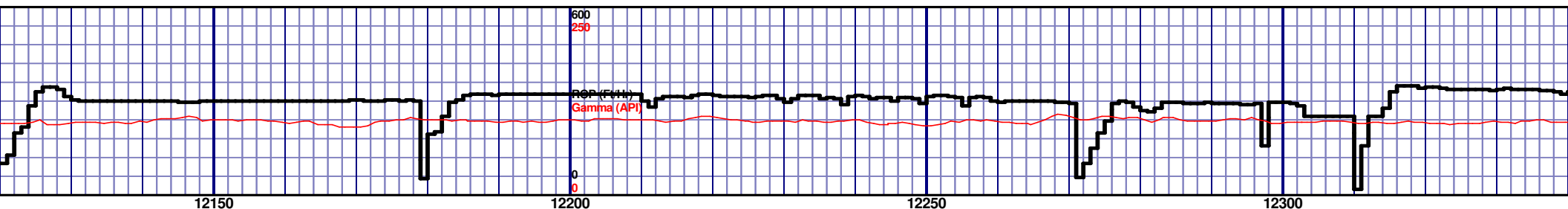
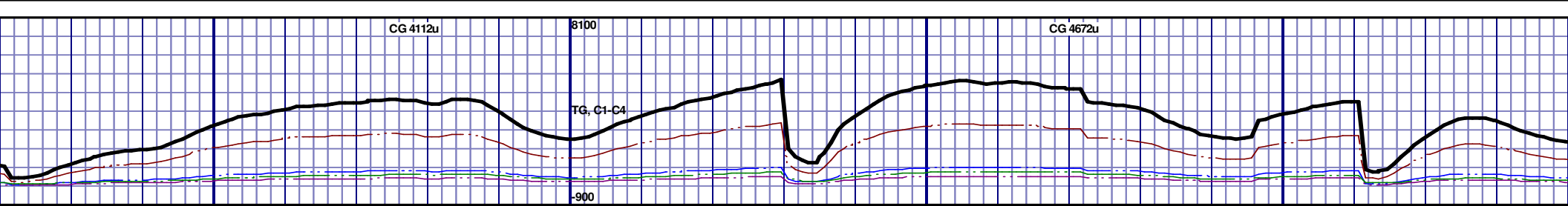


| | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|
| 11900' MD-11950' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, 5% MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | 11950' MD-12000' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | 12000' MD-12050' MD: CHK: 75% MOTT LTGY - MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 25% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | 12050' MD-12100' MD: CHK: 65% MOTT LTGY - MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 35% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | 12100' MD-12150' MD: CHK: 65% MOTT LTGY - MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 35% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | |
|---|--|--|--|--|--|--|--|--|--|

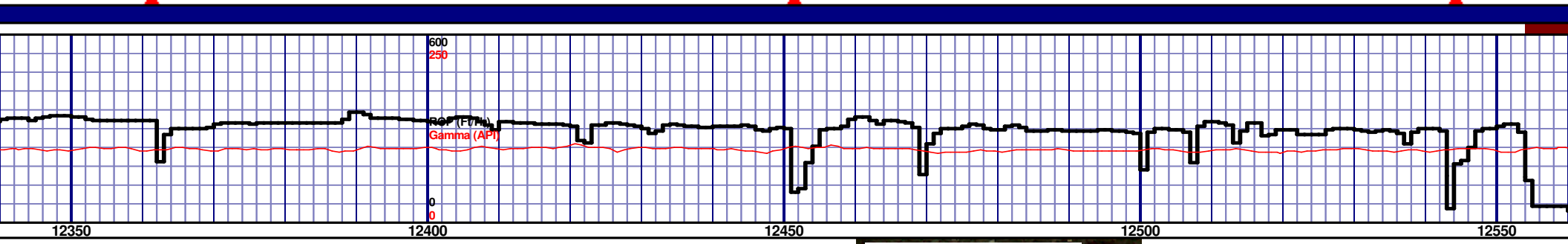
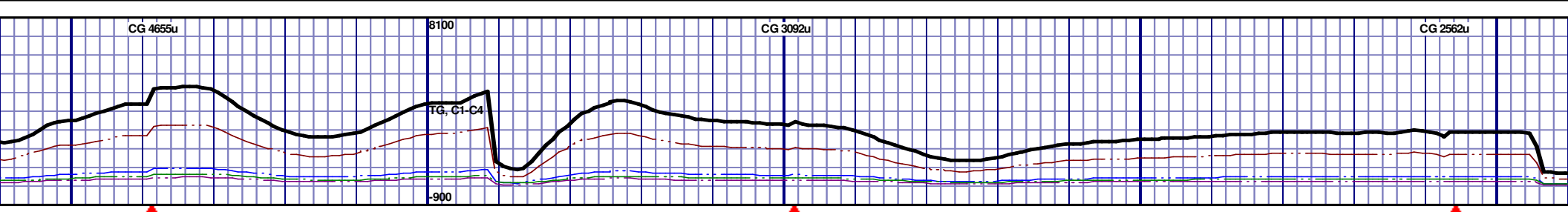
MD 11926 TVD 6713.78
INC 92.06 AZ 268.14
VS 5017.32

MD 12018 TVD 6711.06
INC 91.33 AZ 269.09
VS 5109.17

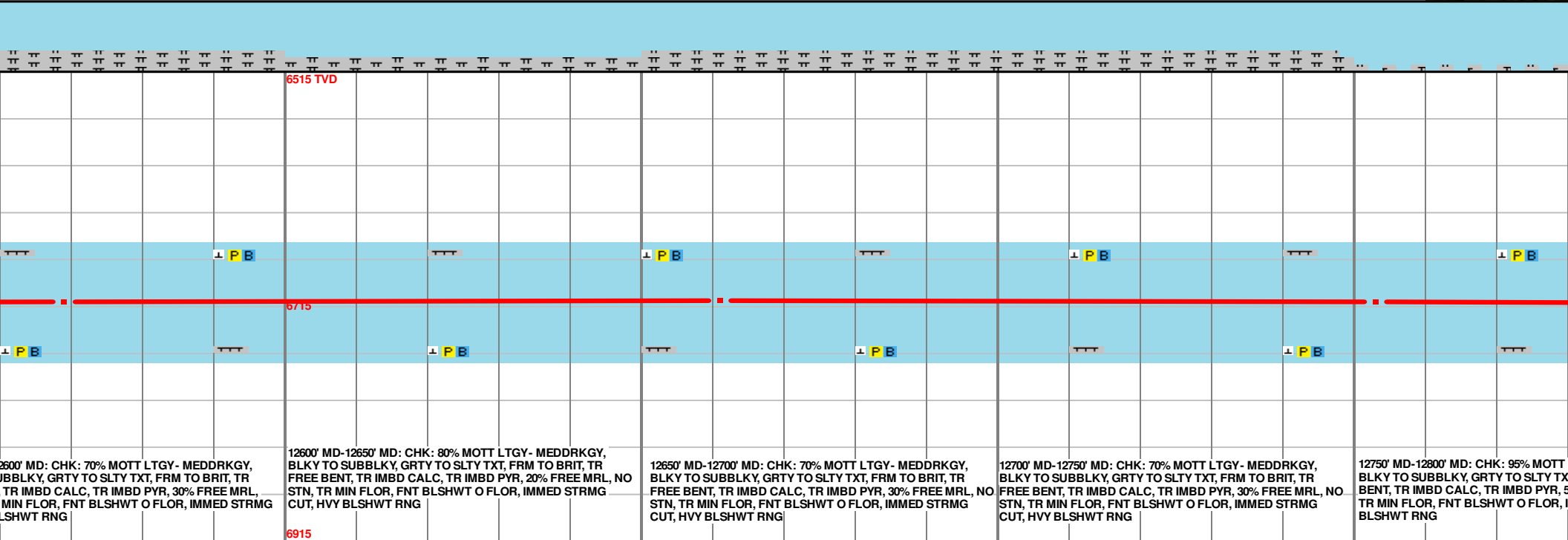
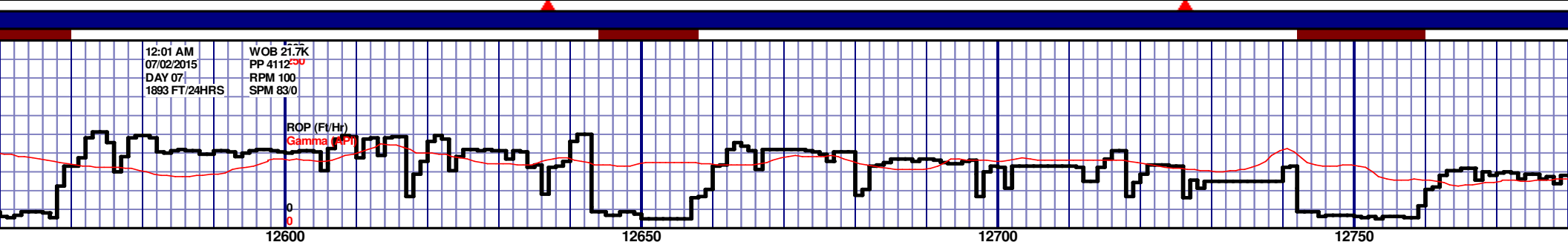
MD 12110 TVD
INC 89.88 AZ
VS 5201.01



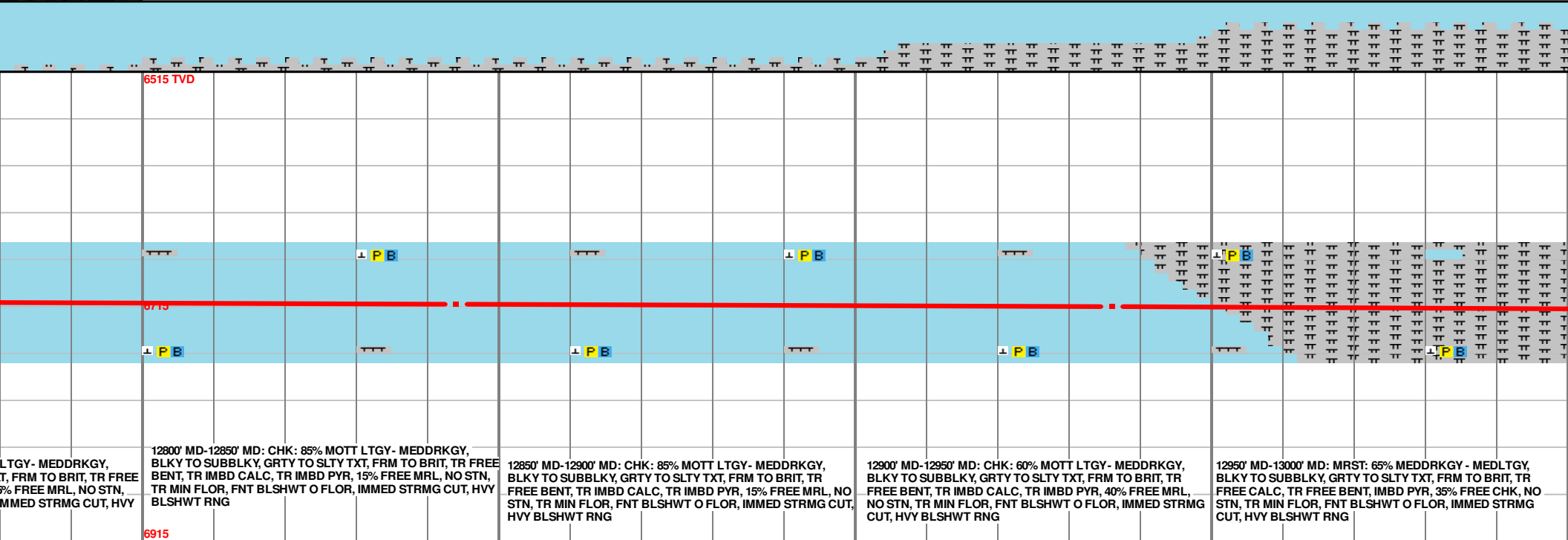
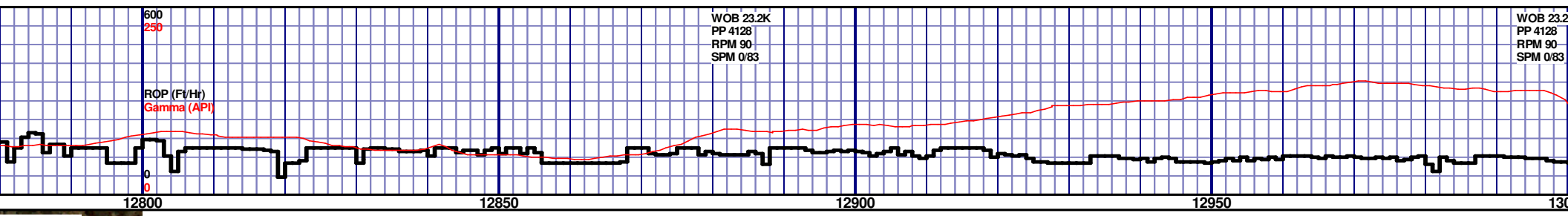
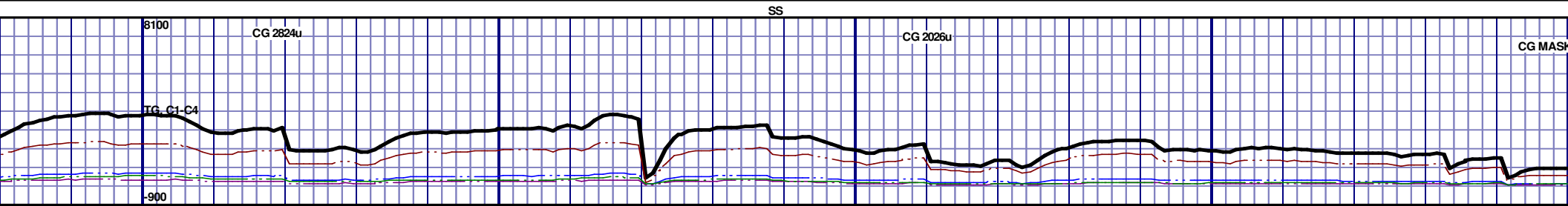
| | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|--|
| 6515 TVD | | | | | | | | | | | |
| 6715 | | | | | | | | | | | |
| 6915 | | | | | | | | | | | |
| 12150' MD-12200' MD: CHK: 60% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | | |
| 12200' MD-12250' MD: CHK: 60% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | | |
| 12250' MD-12300' MD: CHK: 70% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 30% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | | |
| 12300' MD-12350' MD: CHK: 70% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 30% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | | | |



| | | | | | | | | | |
|----------|--|--|--|--|--|--|--|--|--|
| 6515 TVD | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

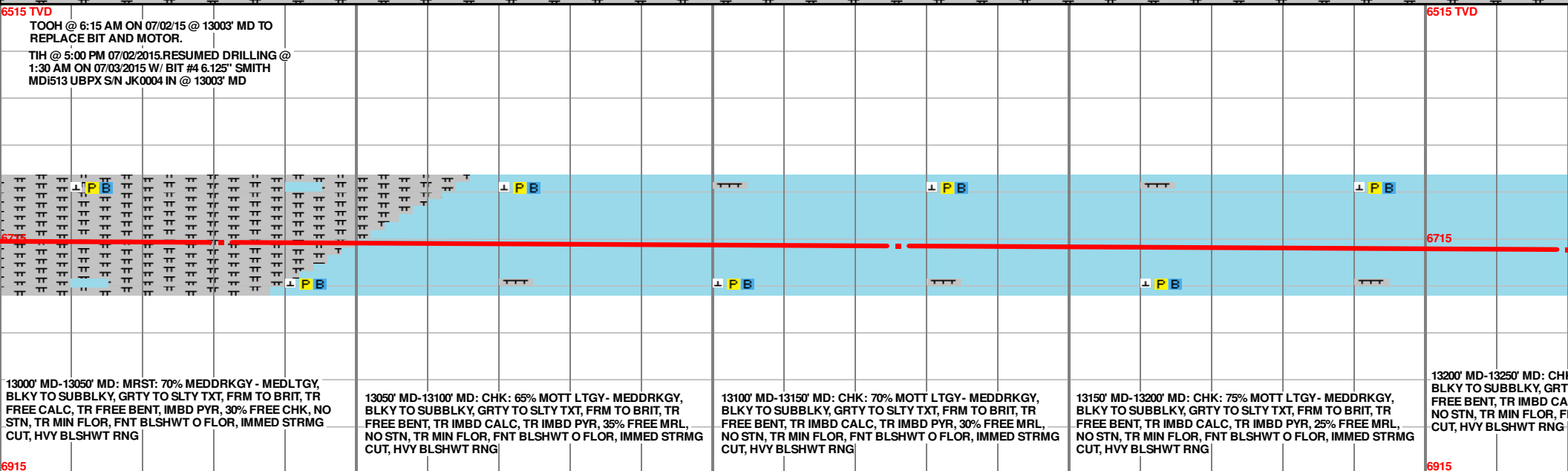
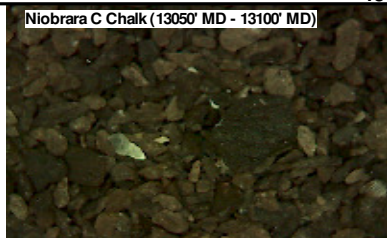
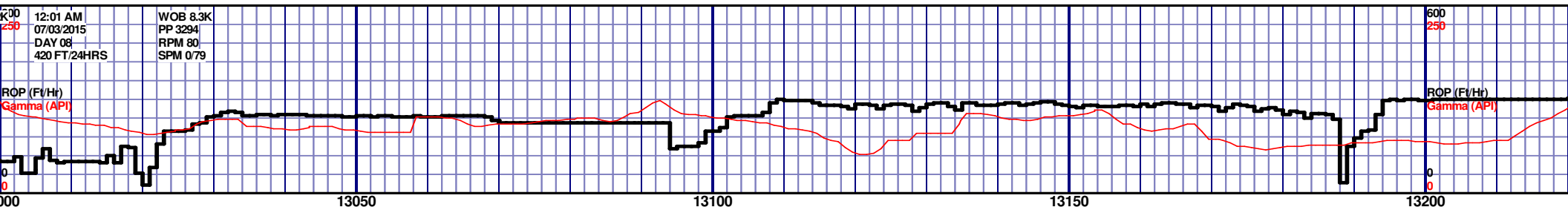
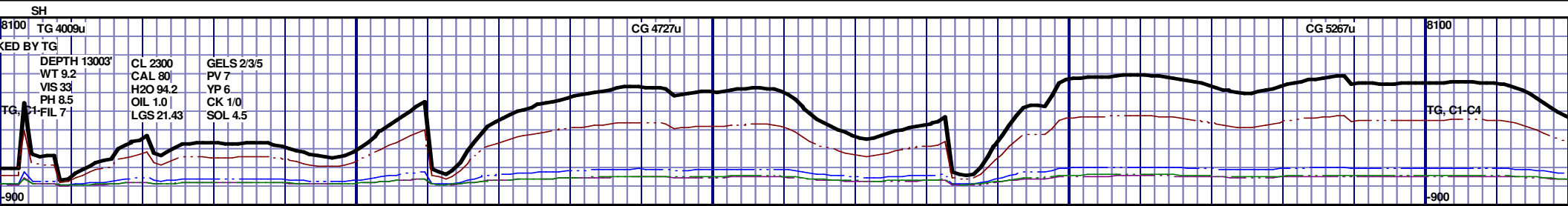


| | | | | |
|--|---|---|---|---|
| 2600' MD: CHK: 70% MOTT LTGY- MEDDRKGY, UBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FR IMBD CALC, TR IMBD PYR, 30% FREE MRL, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG LSHWT RNG | 12600' MD-12650' MD: CHK: 80% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 20% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 12650' MD-12700' MD: CHK: 70% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 30% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 12700' MD-12750' MD: CHK: 70% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 30% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 12750' MD-12800' MD: CHK: 95% MOTT BLKY TO SUBBLKY, GRTY TO SLTY TX BENT, TR IMBD CALC, TR IMBD PYR, 5 TR MIN FLOR, FNT BLSHWT O FLOR, BLSHWT RNG |
|--|---|---|---|---|



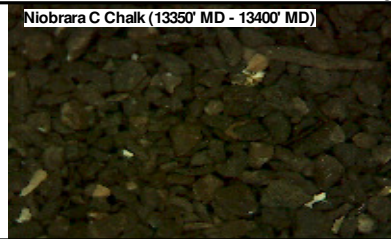
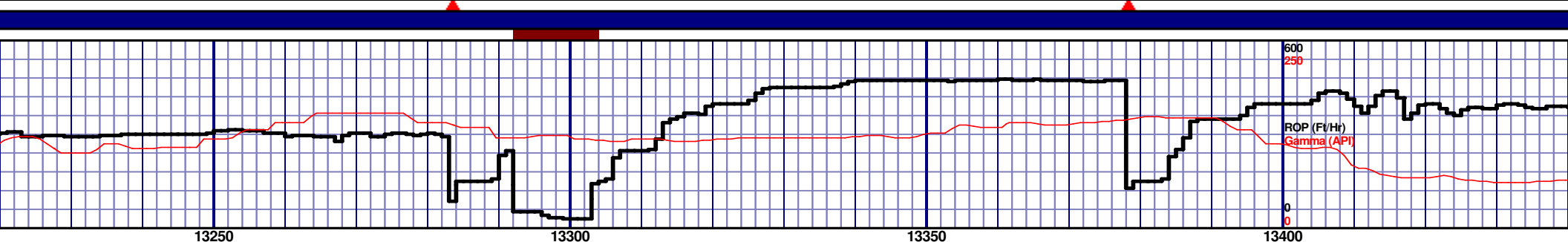
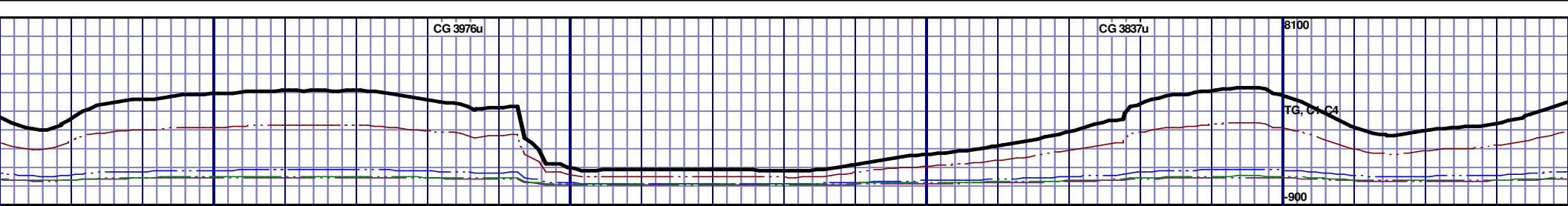
MD 12844 TVD 6713.03
INC 88.49 AZ 271.27
VS 5933.59

MD 12936 TVD 6715.38
INC 88.58 AZ 271.05
VS 6025.17

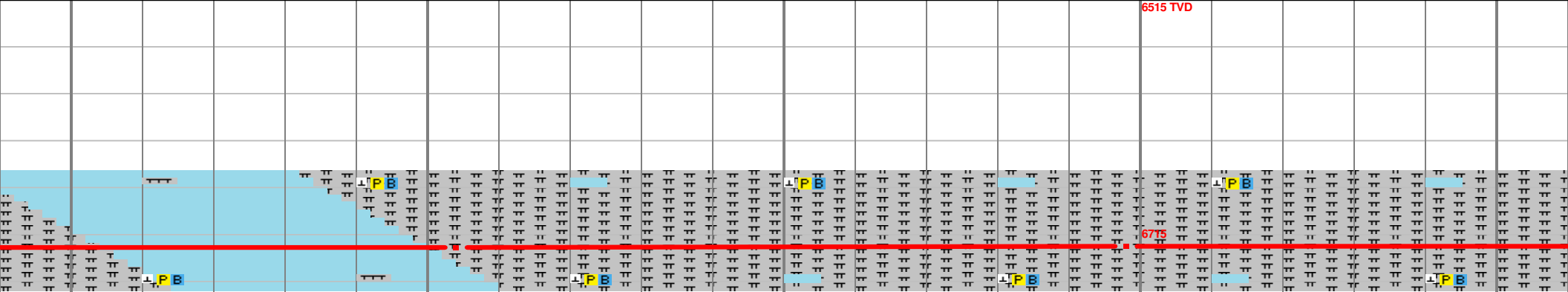
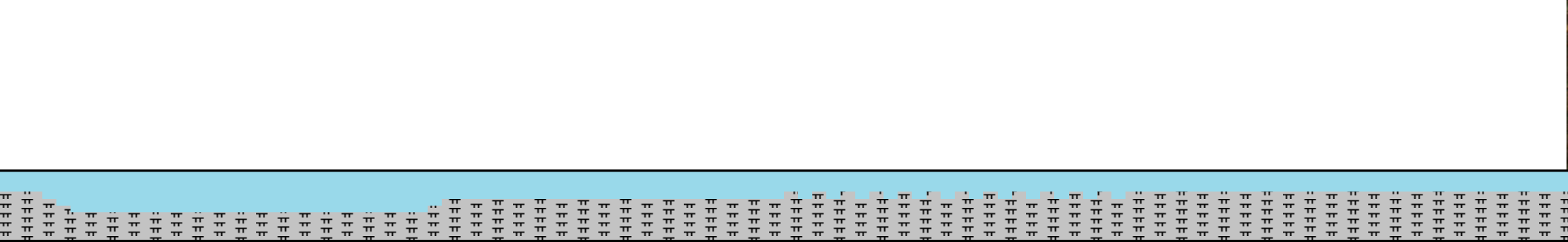
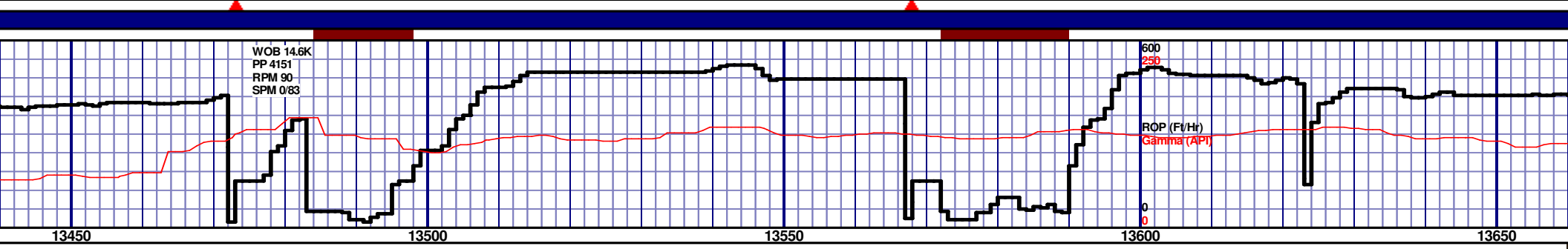
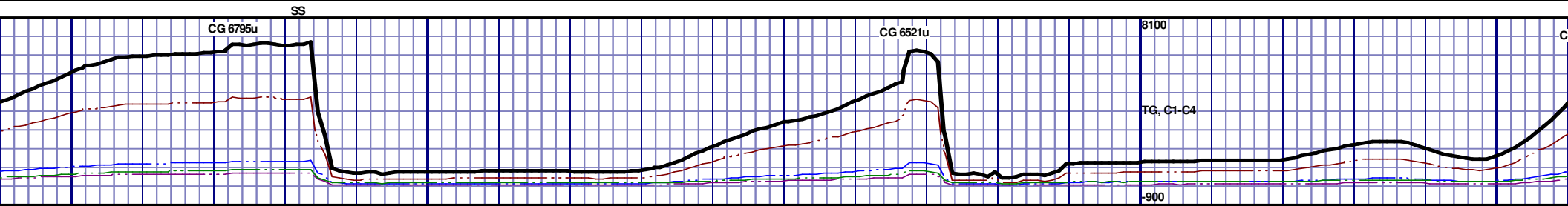


MD 13031 TVD 6718.15
INC 88.09 AZ 270.67
VS 6119.77

MD 13126 TVD 6721.05
INC 88.4 AZ 270.5
VS 6214.41



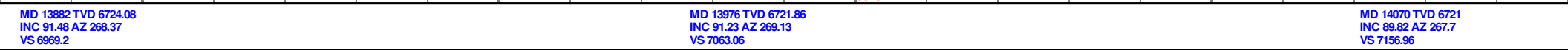
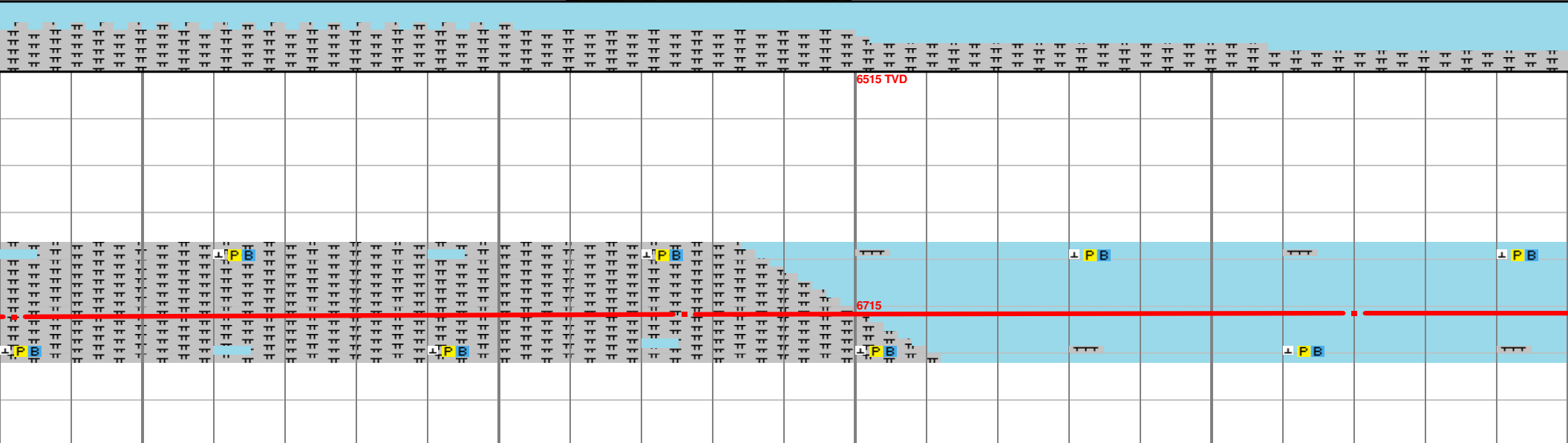
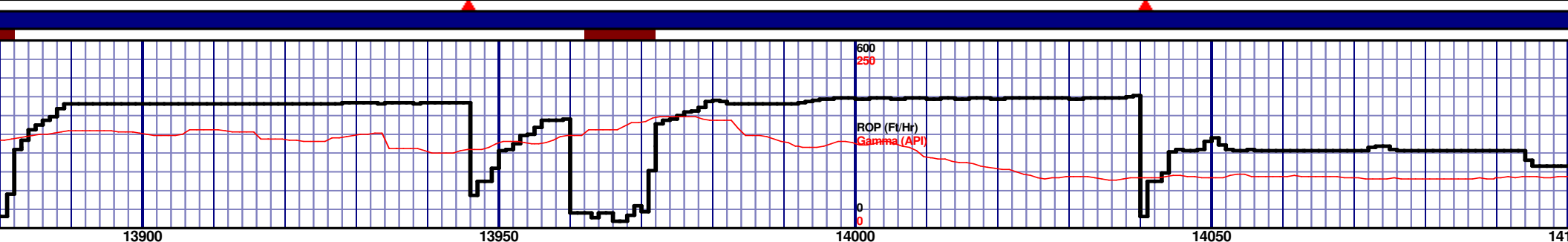
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| 13250' MD-13300' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 13300' MD-13350' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 13350' MD-13400' MD: MRST: 85% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 15% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 13400' MD-13450' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |

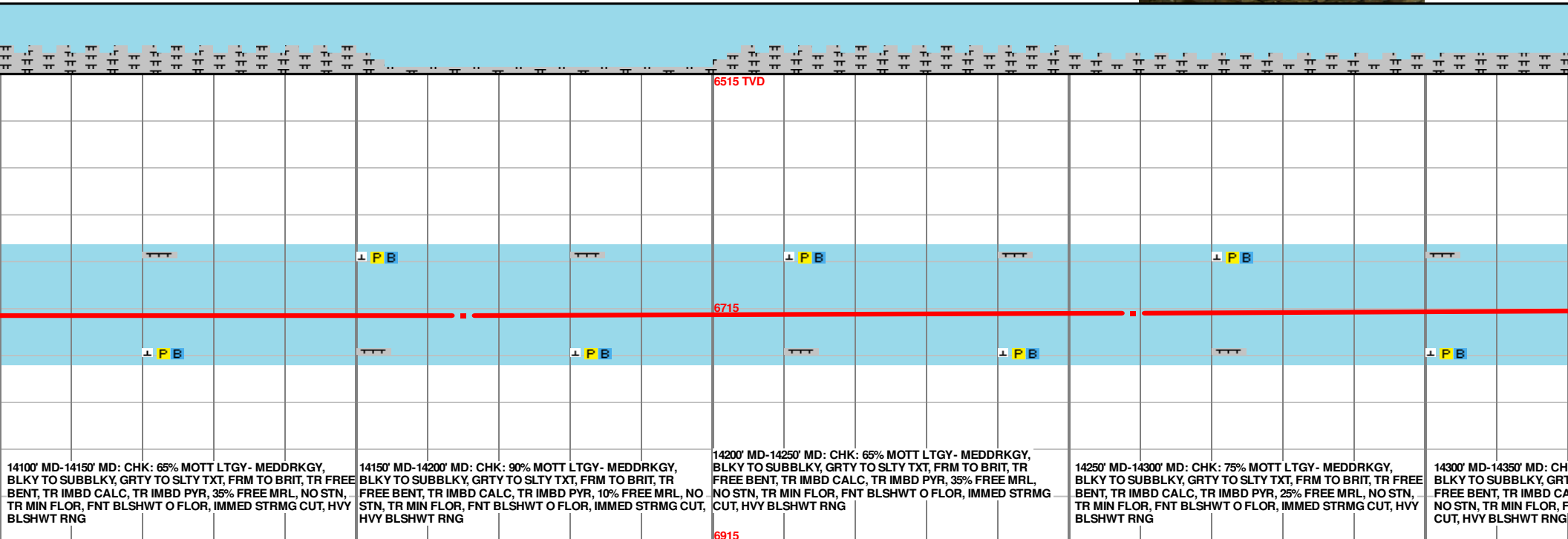
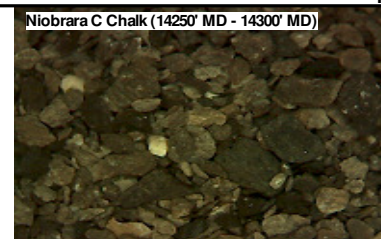
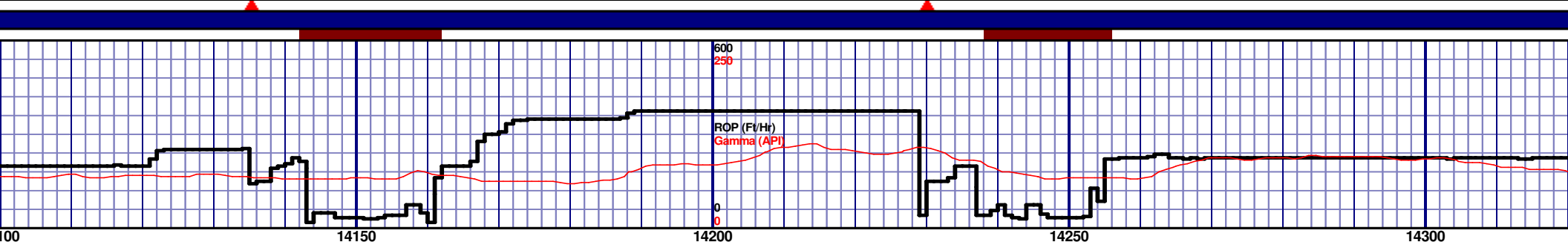
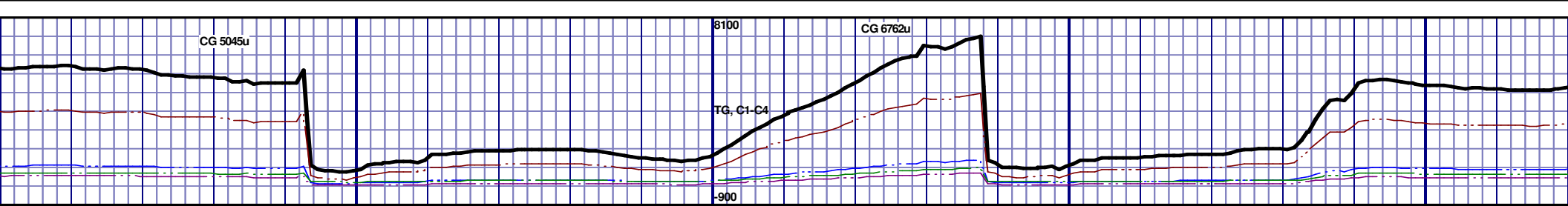


| | | | | |
|---|--|--|--|--|
| 13450' MD-13500' MD: CHK: 60% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 13500' MD-13550' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 13550' MD-13600' MD: MRST: 65% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 35% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 13600' MD-13650' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 13650' MD-13700' MD: MRST: 75% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 25% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG |
|---|--|--|--|--|

MD 13504 TVD 6725.85
INC 89.91 AZ 268.85
VS 6591.48

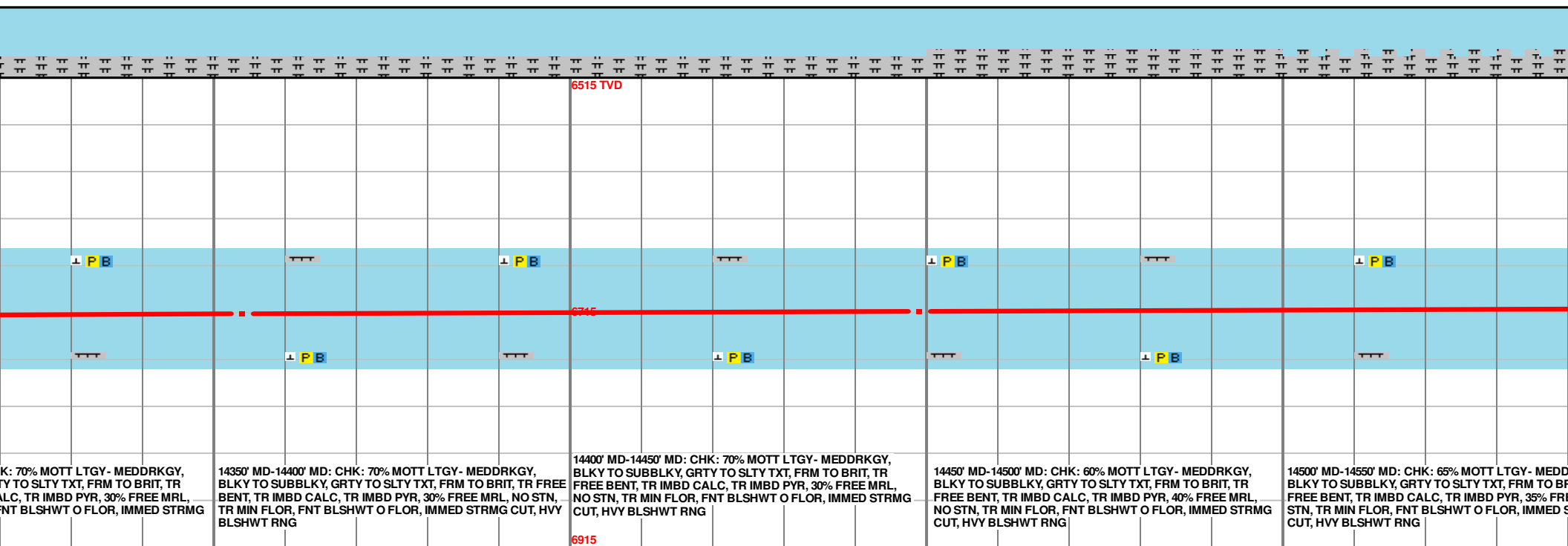
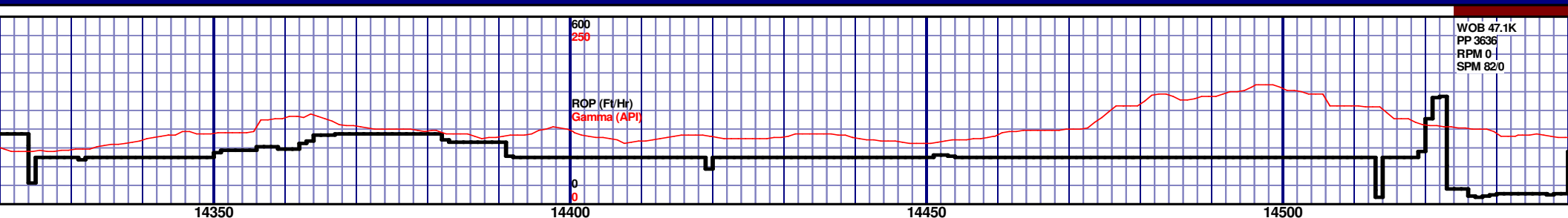
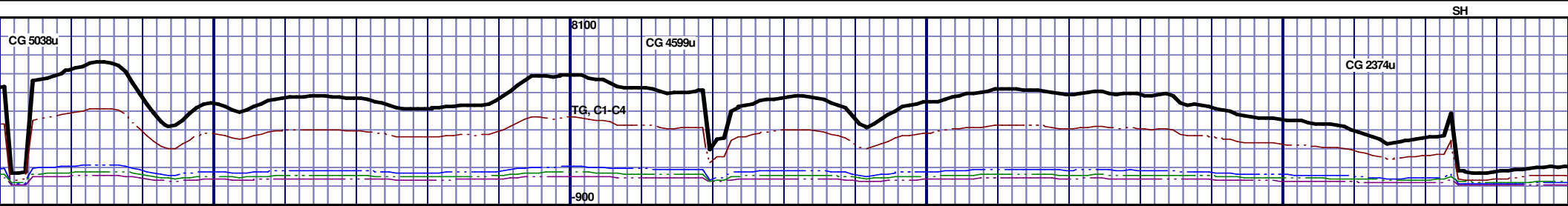
MD 13598 TVD 6725.31
INC 90.74 AZ 268.76
VS 6685.35





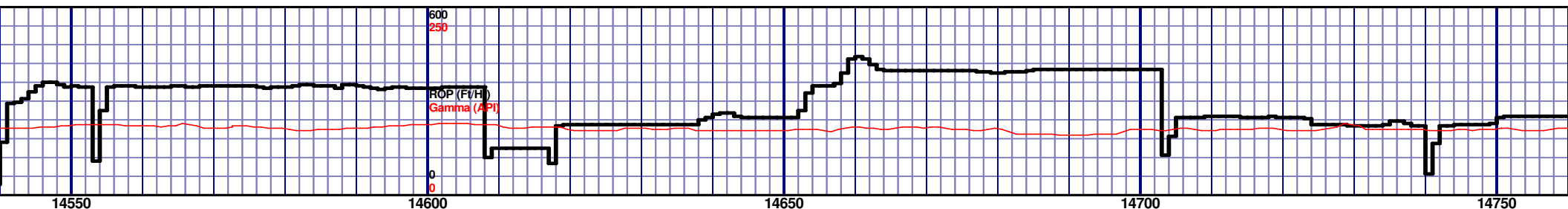
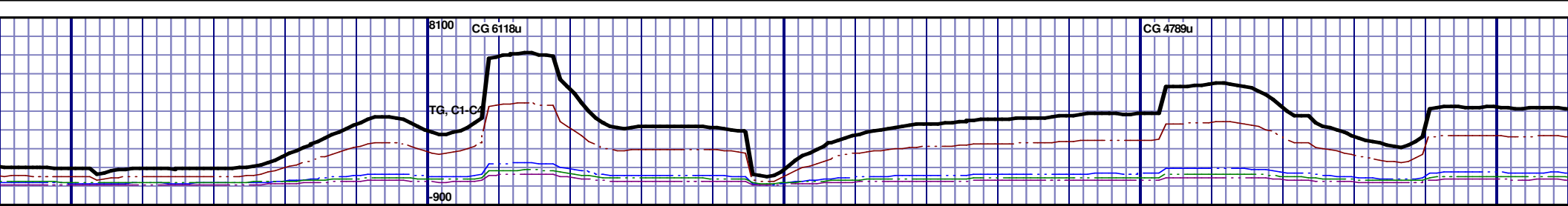
MD 14165 TVD 6720.72
INC 90.52 AZ 268.76
VS 7251.88

MD 14259 TVD 6718.85
INC 91.76 AZ 270.84
VS 7345.63

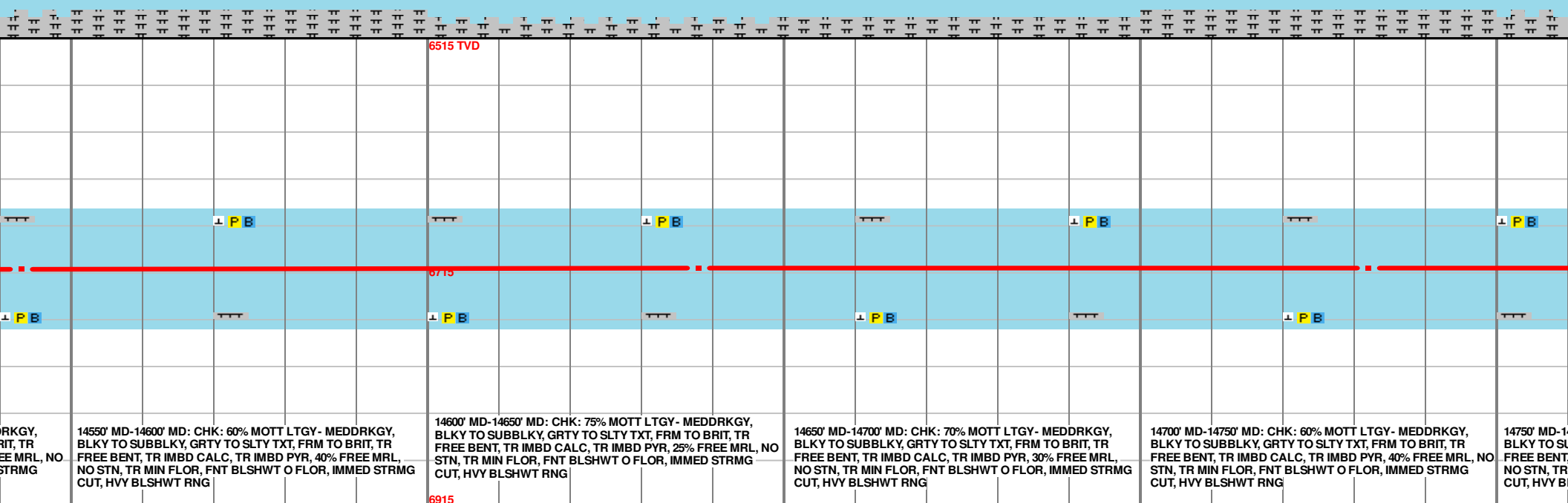


MD 14354 TVD 6716.32
INC 91.29 AZ 270
VS 7440.3

MD 14449 TVD 6713.87
INC 91.66 AZ 269.54
VS 7535.06



Niobrara C Chalk (14550' MD - 14600' MD)



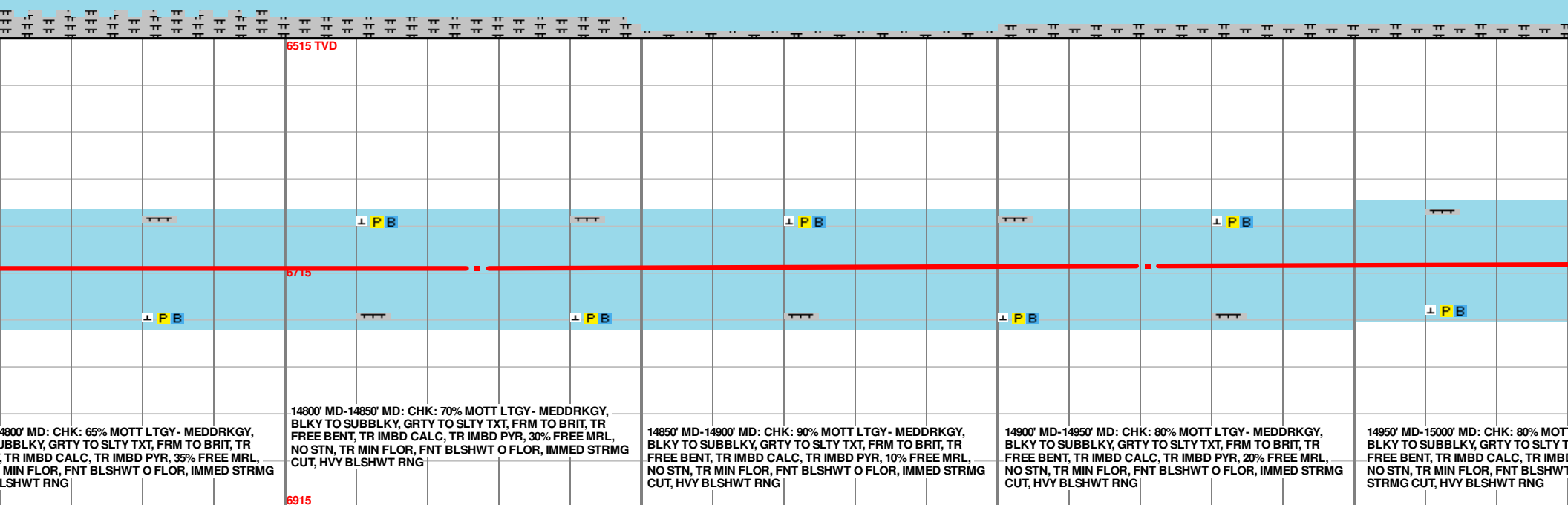
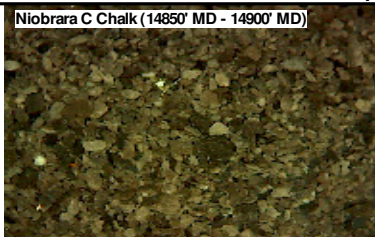
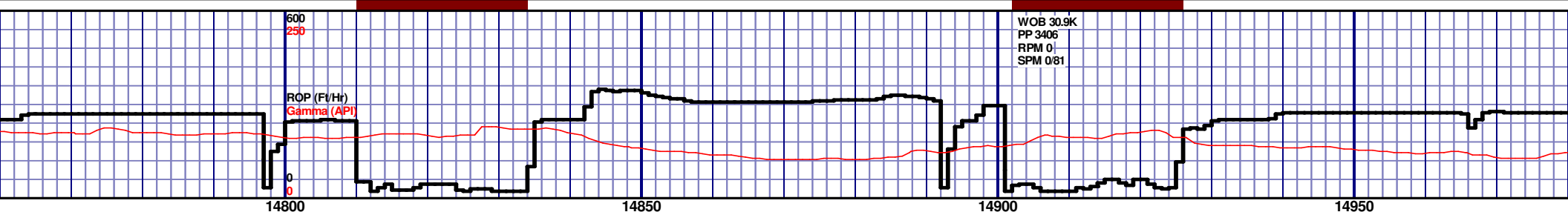
14550' MD-14600' MD: CHK: 60% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

14600' MD-14650' MD: CHK: 75% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 25% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

14650' MD-14700' MD: CHK: 70% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 30% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

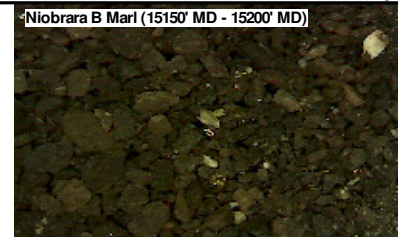
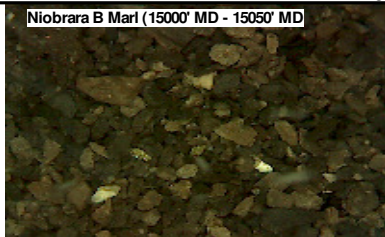
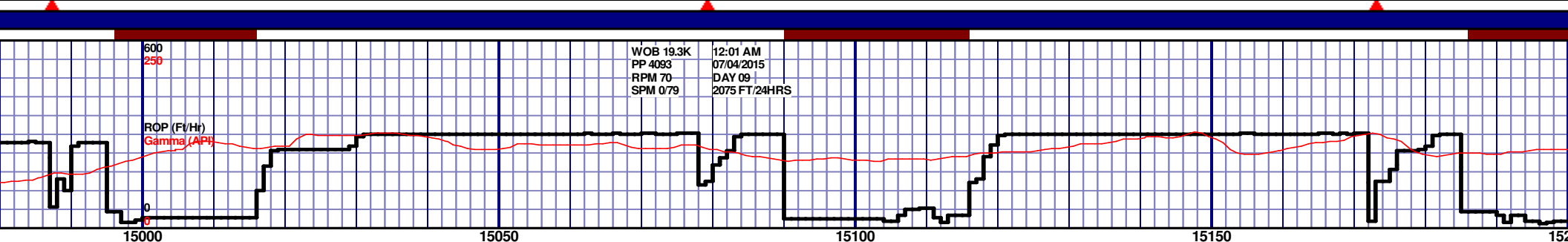
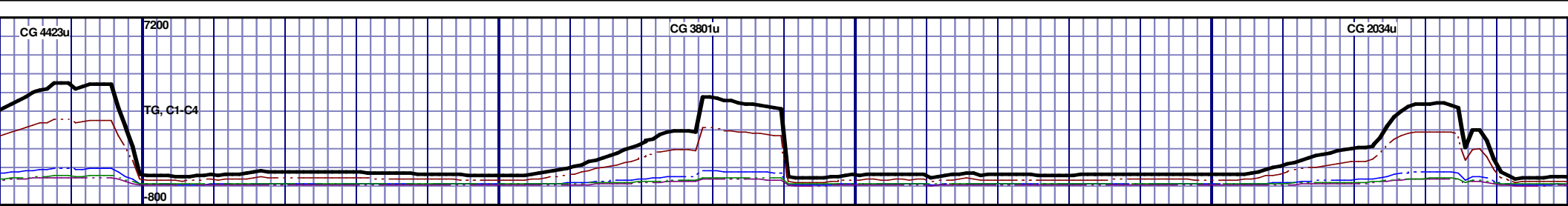
14700' MD-14750' MD: CHK: 60% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

14750' MD-14800' MD: CHK: 60% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG



MD 14827 TVD 6710.71
INC 90.52 AZ 266.34
VS 7912.47

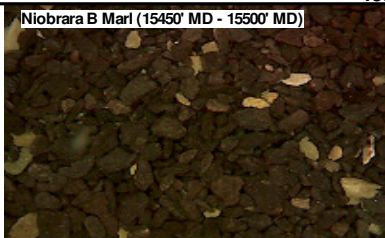
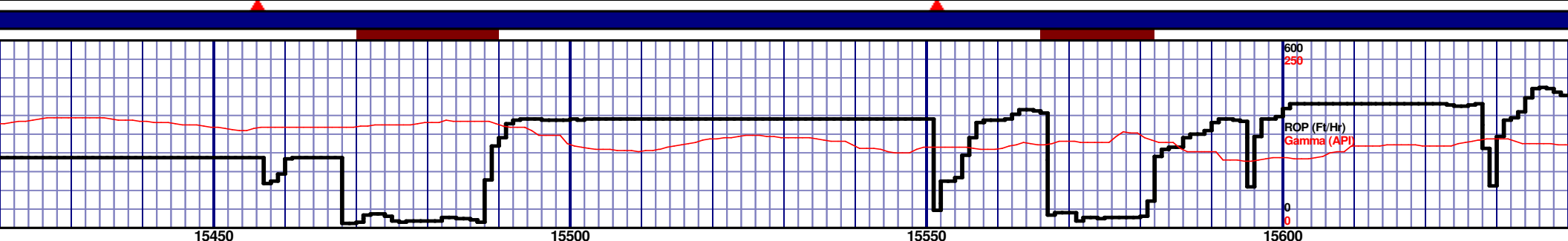
MD 14921 TVD 6709.28
INC 91.23 AZ 268.98
VS 8006.41



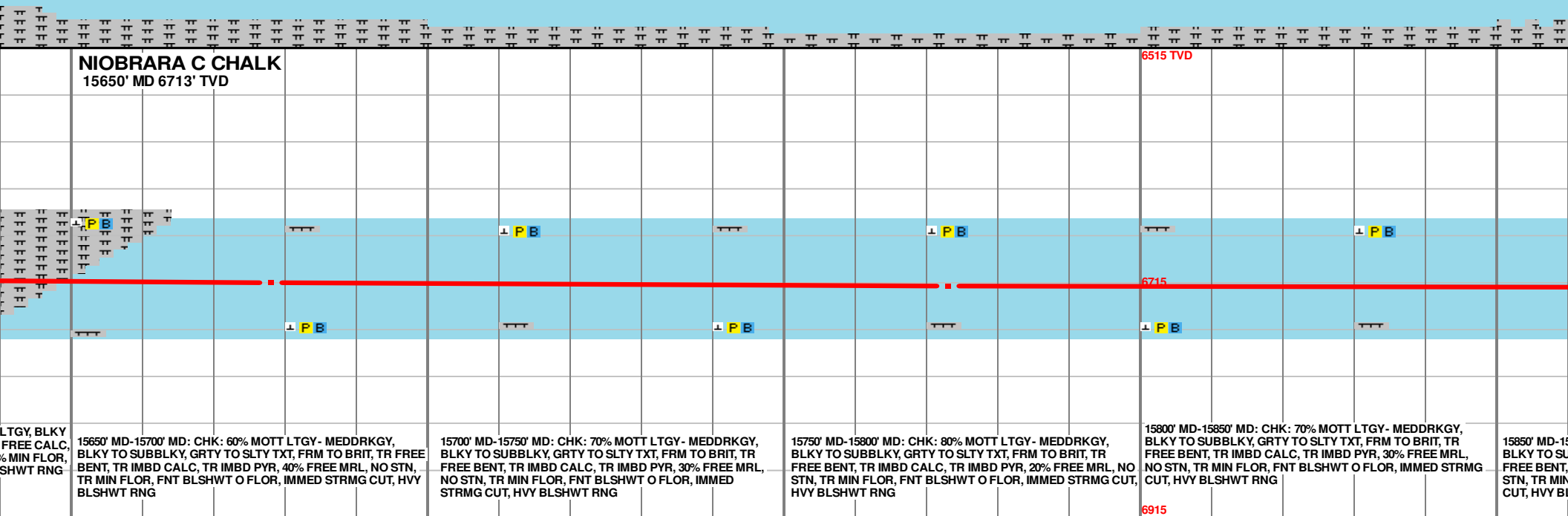
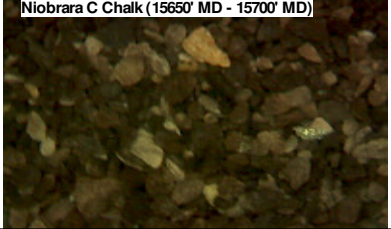
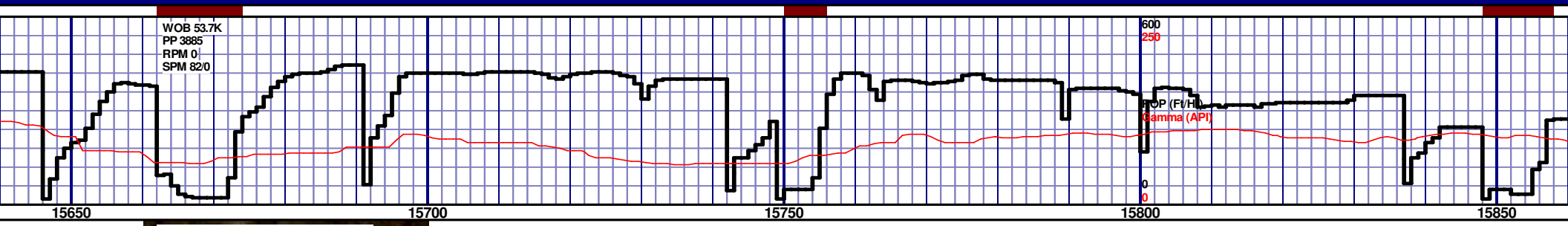
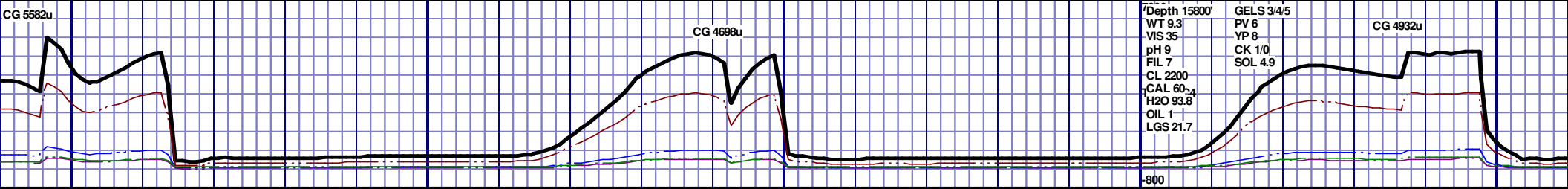
| | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|
| 6515 TVD | | | | | | | | | |
| NIOBRARA B MARL 15022' MD 6707' TVD | | | | | | | | | |
| 6715 | | | | | | | | | |
| 6915 | | | | | | | | | |
| 15000' MD-15050' MD: CHK: 60% MOTT LTGY- MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 15050' MD-15100' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 15100' MD-15150' MD: MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 15150' MD-15200' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, TR FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |

MD 15016 TVD 6707.41
INC 91.02 AZ 270.6
VS 8101.17

MD 15111 TVD 6705.62
INC 91.14 AZ 272.15
VS 8195.71

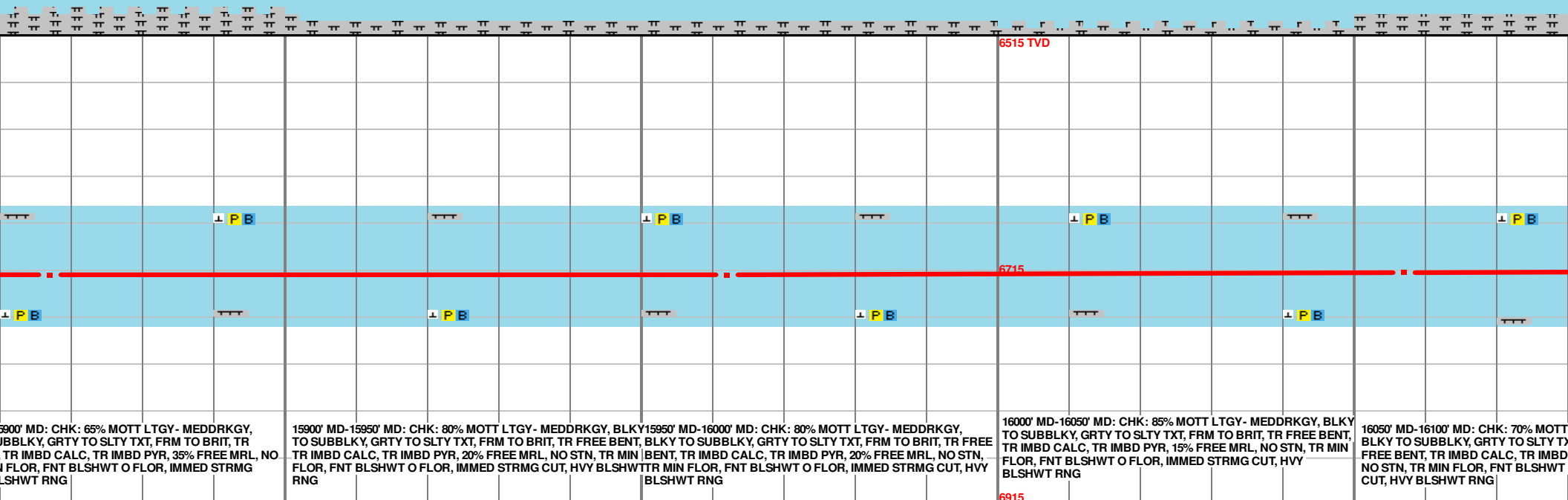
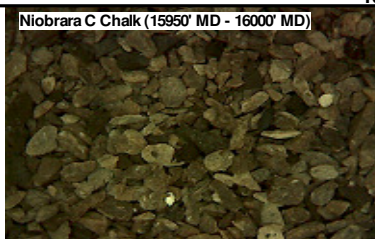
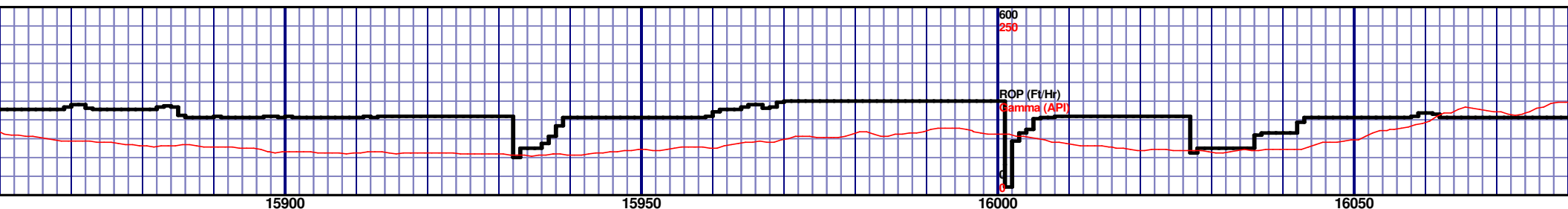
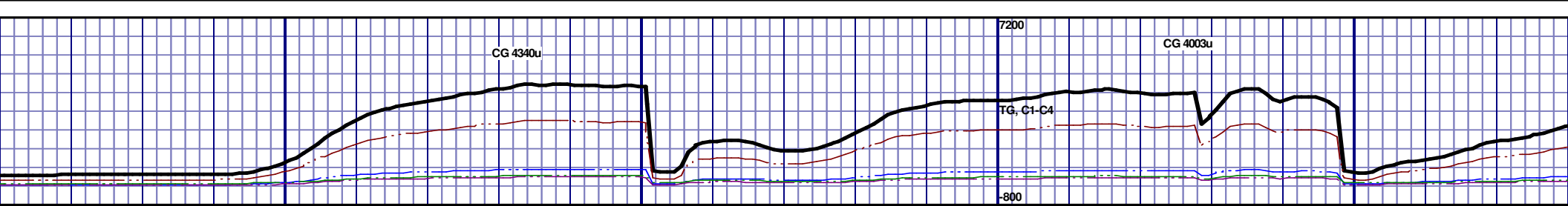


| | | | | |
|---|---|---|---|--|
| ST: 80% MEDDRKGY - MEDLTGY, BLKY SLTY TXT, FRM TO BRIT, TR FREE CALC, 20% FREE CHK, NO STN, TR MIN OR, IMMED STRMG CUT, HVY BLSHWT | 15450' MD-15550' MD: MRST: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, ABTD FREE BENT, IMBD PYR, 10% FREE CHK, NO STN, 15% MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 15500' MD-15550' MD: MRST: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, ABTD FREE BENT, IMBD PYR, 10% FREE CHK, NO STN, 15% MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 15550' MD-15600' MD: MRST: 65% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, ABTD FREE BENT, IMBD PYR, 35% FREE CHK, NO STN, 10% MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | 15600' MD-15650' MD: MRST: 60% MEDDRKGY - MED TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, IMBD PYR, 40% FREE CHK, NO STN, 10% FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BL |
|---|---|---|---|--|



MD 15678 TVD 6714.76
INC 88 AZ 269.37
VS 8759.59

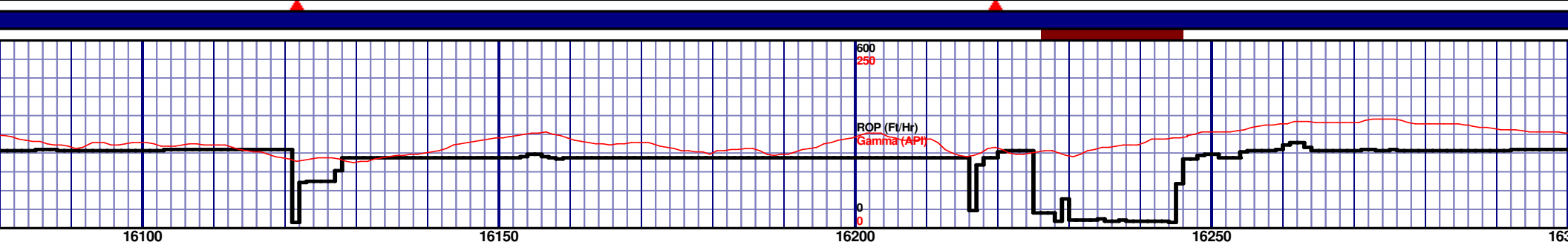
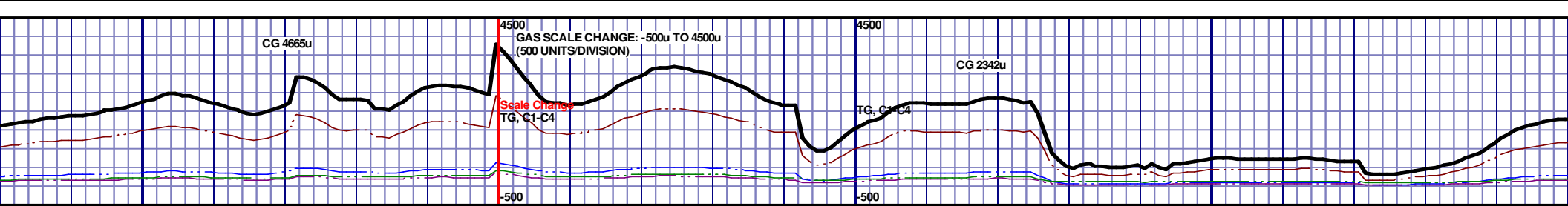
MD 15773 TVD 6717.96
INC 88.15 AZ 269.3
VS 8854.37



MD 15867 TVD 6719.47
INC 90 AZ 269.95
VS 8948.15

MD 15962 TVD 6718.96
INC 90.62 AZ 269.91
VS 9042.91

MD 16057 TVD 6717.43
INC 91.23 AZ 269.6
VS 9137.69



| | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|
| 6515 TVD NIOBARRA B MARL 16200' MD 6713' TVD | | | | | | | | | |
| 16100' MD-16150' MD: CHK: 60% MOTT LTGY - MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |
| 16150' MD-16200' MD: CHK: 60% MOTT LTGY - MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREEFREE CALC, FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, 10% MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY HVY BLSHWT RNG | | | | | | | | | |
| 16200' MD-16250' MD: MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREEFREE CALC, FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, BENT, TR IMBD CALC, TR IMBD PYR, 40% FREE MRL, NO STN, 10% MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, TR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY HVY BLSHWT RNG | | | | | | | | | |
| 16250' MD-16300' MD: MRST: 80% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TR FREE CALC, FREE BENT, IMBD PYR, 20% FREE CHK, NO STN, 10% MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG | | | | | | | | | |

MD 16151 TVD 6714.78
INC 92 AZ 269.29
VS 9231.47

MD 16246 TVD 6712.94
INC 90.22 AZ 269.57
VS 9326.27

