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Tulsa, Oklahoma 74136-6378

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fax 866.534.4559

WWW.HZMUD.COM/25

Customer Information

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

Geologist: Holly Duncan
Noble Energy Inc.

Mud Logging Details

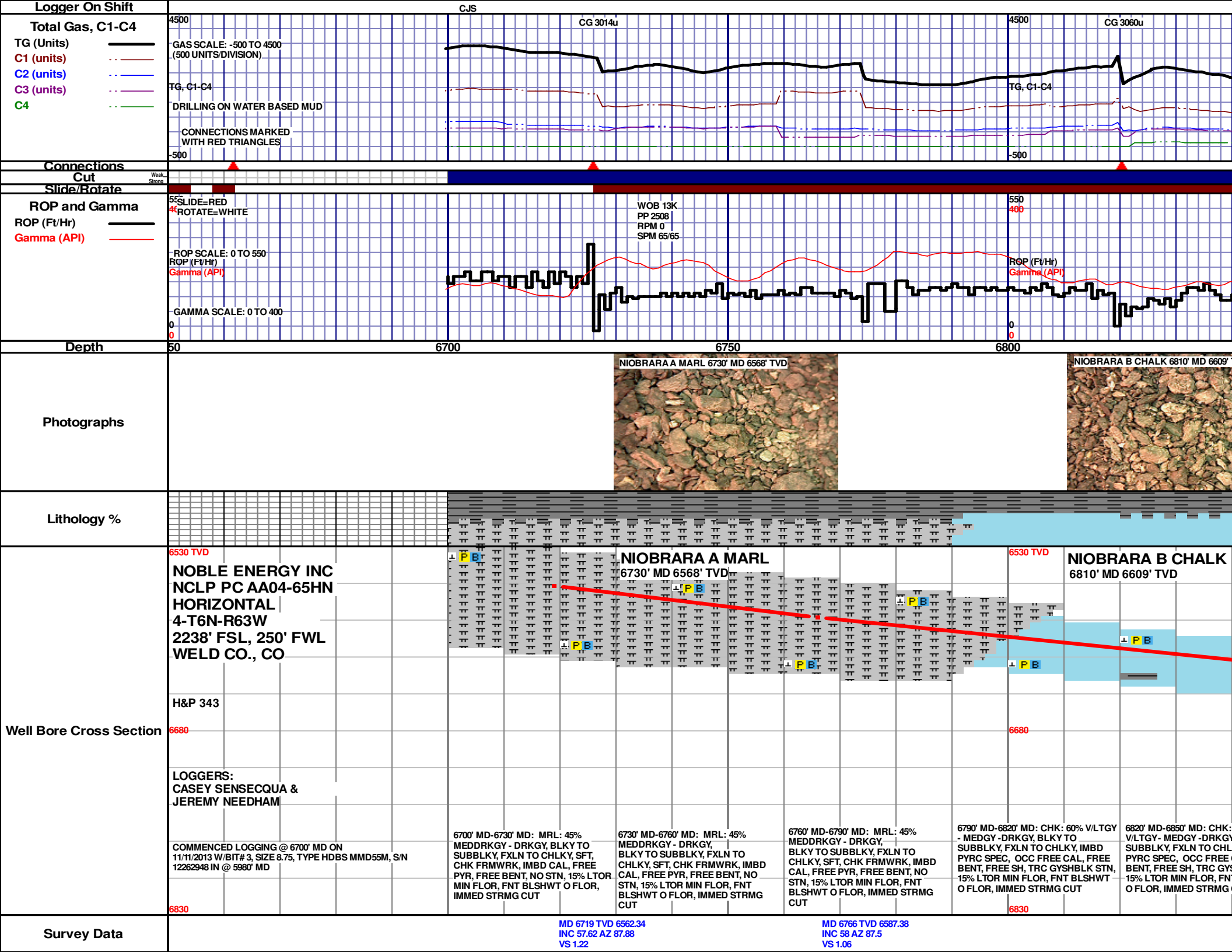
Logger: Casey Sensecqua &
Jeremy Needham
Log Interval: 6700' MD to 16231' MD
Start Date: November 11, 2013
Release Date: November 17, 2013

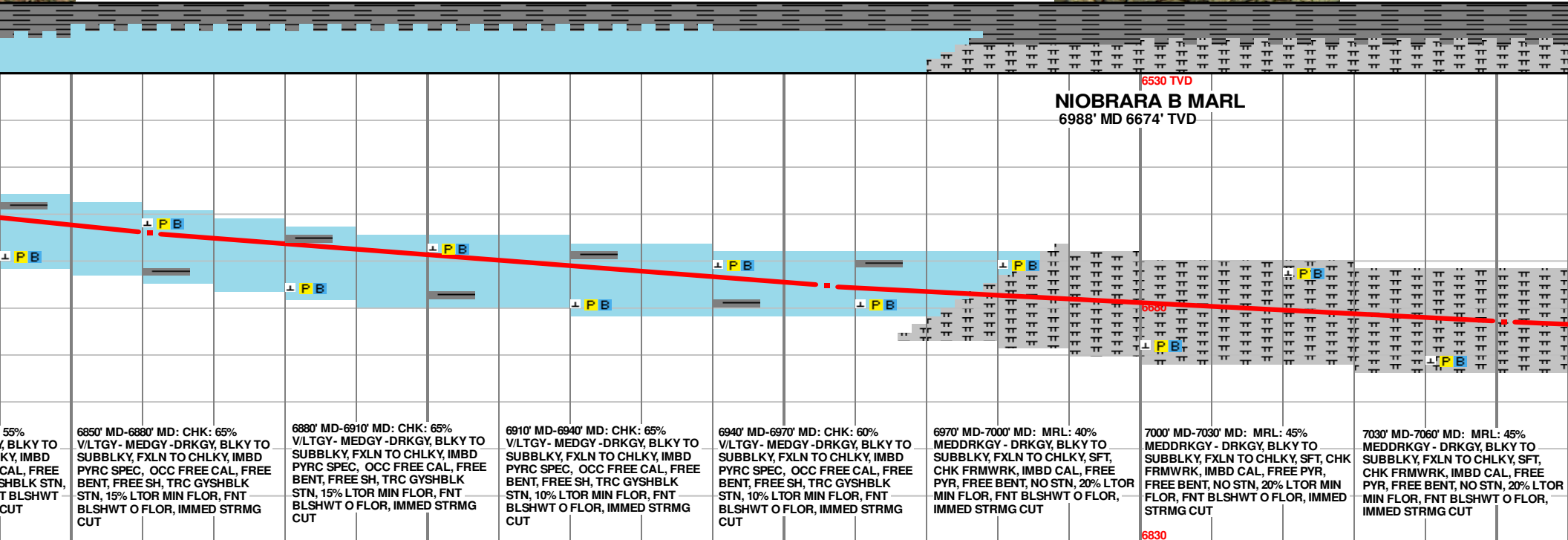
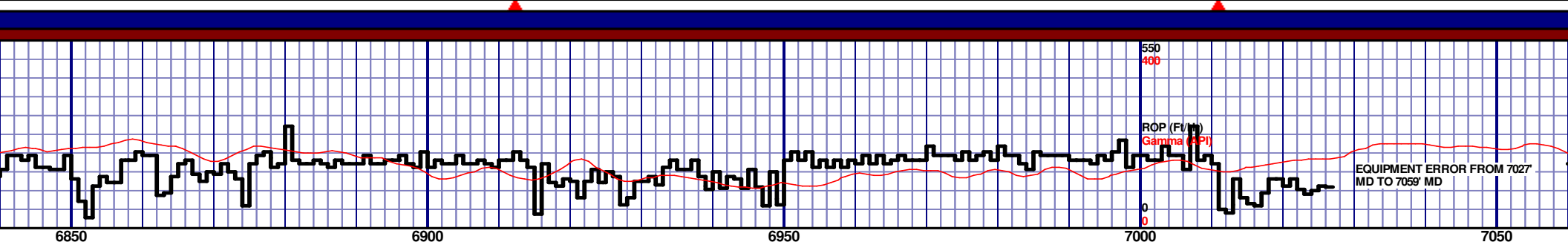
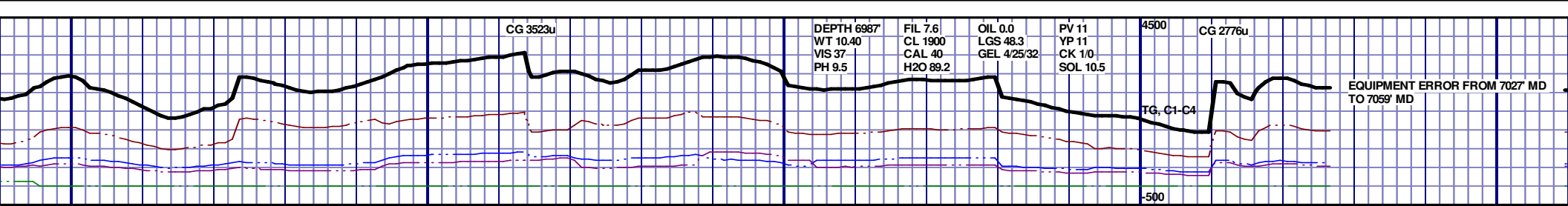
Well Information

Well Name: NCLP PC AA04-65HN
Horizontal
Location: 4-T6N-R63W
2238' FSL, 250' FWL

County: Weld
State: Colorado

Drilling Rig: H&P 343
Total Depth: 16231' MD
TD Date: November 17, 2013
Formation: Niobrara C Chalk
KB Elevation: 4735'
GR Elevation: 4711'
API Number: 05-123-37174-0000

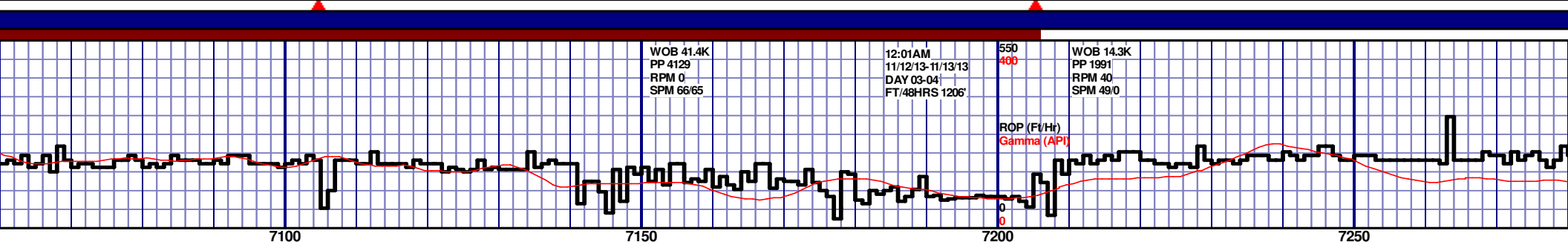
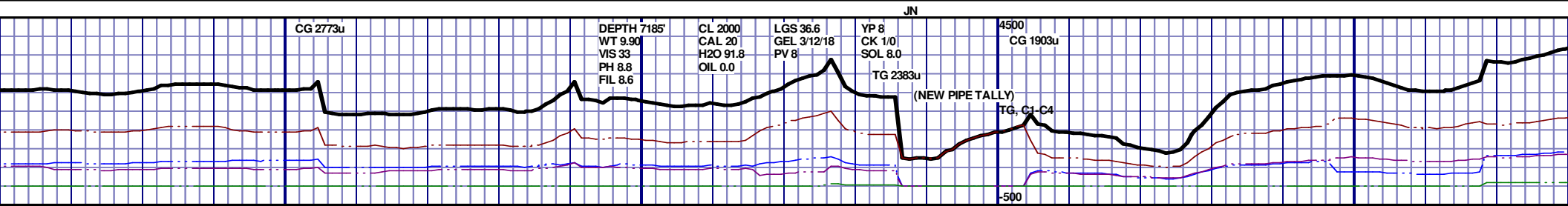




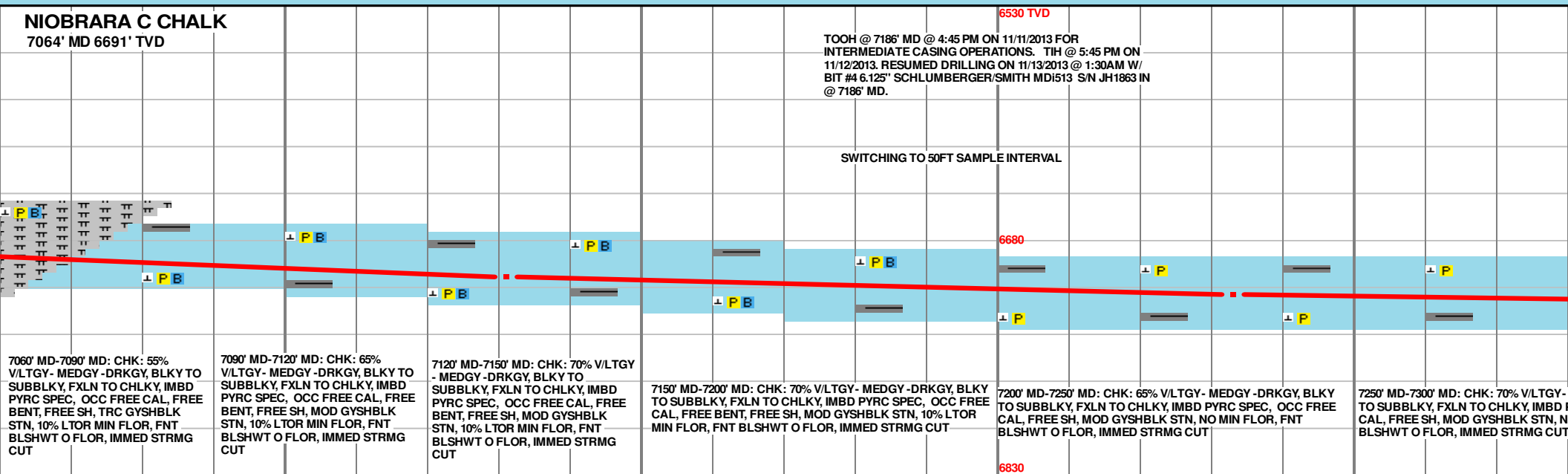
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INC 65.67 AZ 88.63
VS 8.14

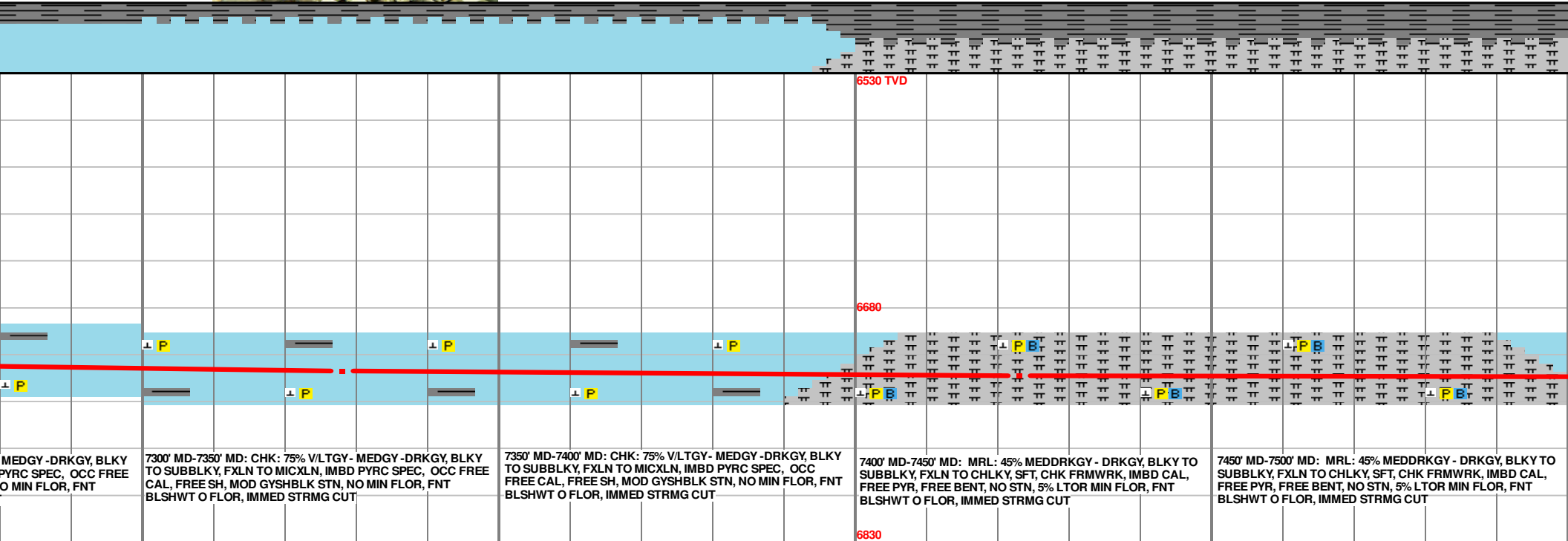
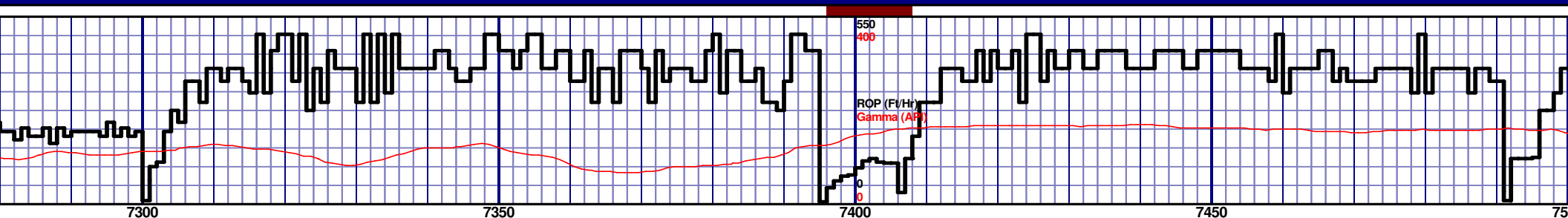
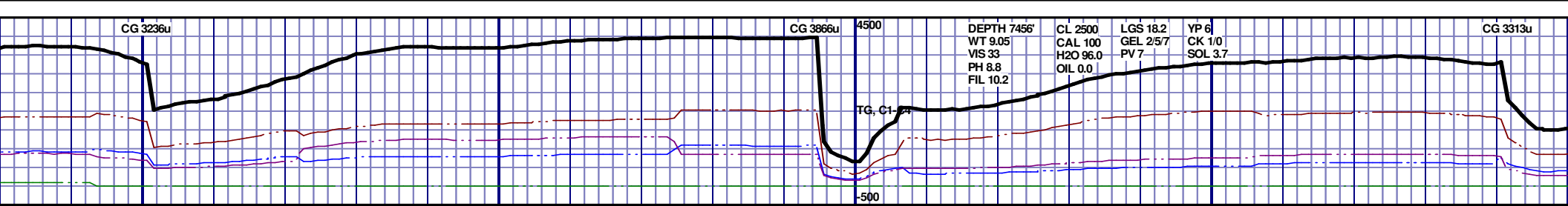
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INC 72.7 AZ 87.42
VS 555.59

MD 7051 TVD 6671.71
INC 79.34 AZ 87.42
VS 647.71



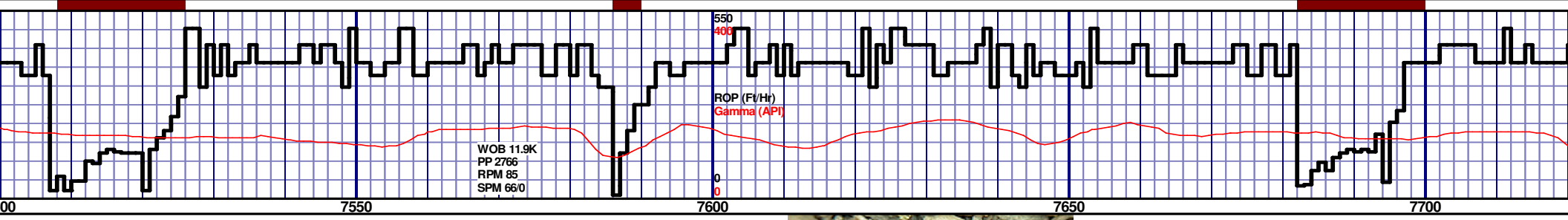
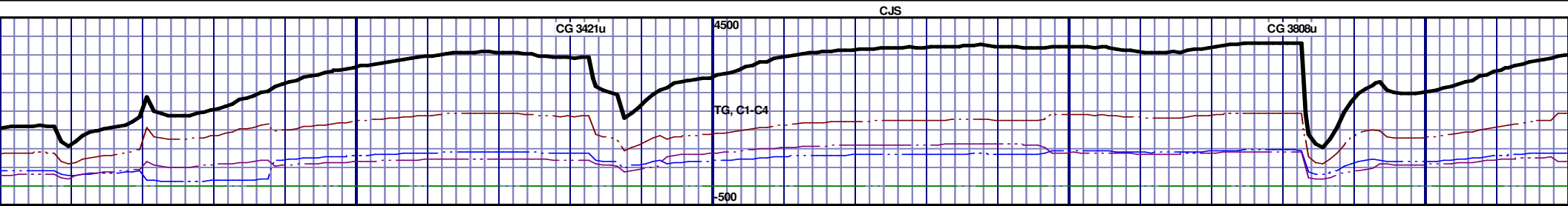
NIOBARRA C CHALK 7064' MD 6691' TVD





MD 7328 TVD 6720.2
INC 86.8 AZ 90.59
VS 922.21

MD 7423 TVD 6723.18
INC 89.6 AZ 91.6
VS 1016.91

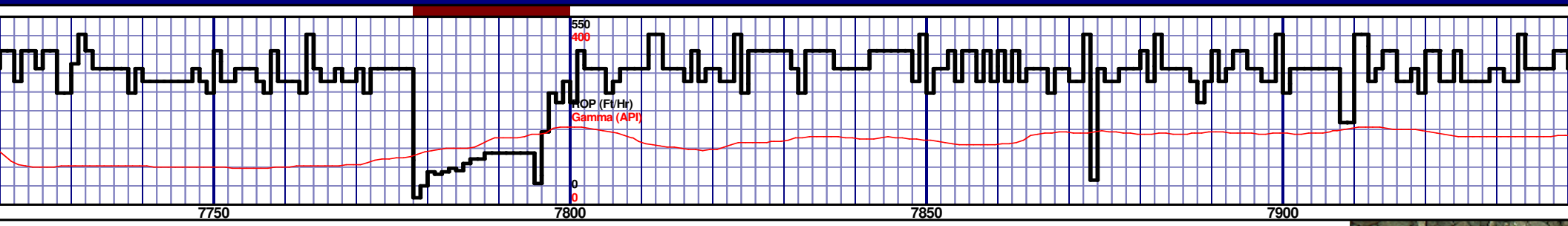
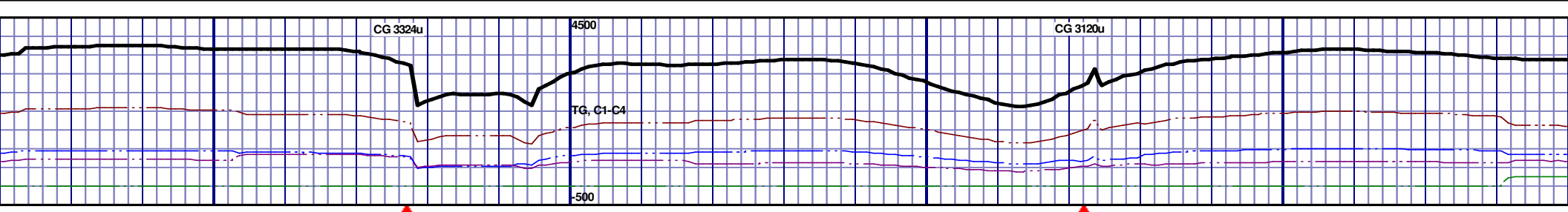


				6530 TVD							
				6680							
7500' MD-7550' MD: CHK: 55% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, MOD GYSHBLK STN, 10% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				7550' MD-7600' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, MOD GYSHBLK STN, 10% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				7600' MD-7650' MD: CHK: 65% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT			
7650' MD-7700' MD: CHK: 70% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO MICXLN, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				7700' MD-7750' MD: CHK: TO SUBBLKY, FXLN TO M CAL, FREE SH, MOD GYS BLSHWT O FLOR, IMMED							
				6830							

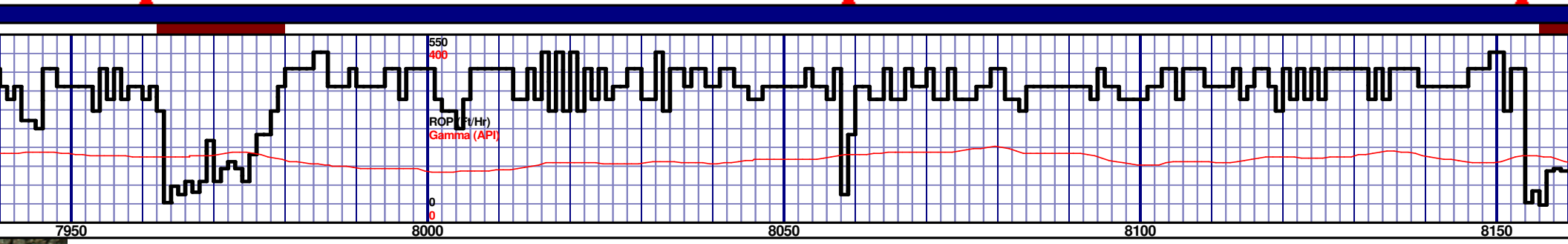
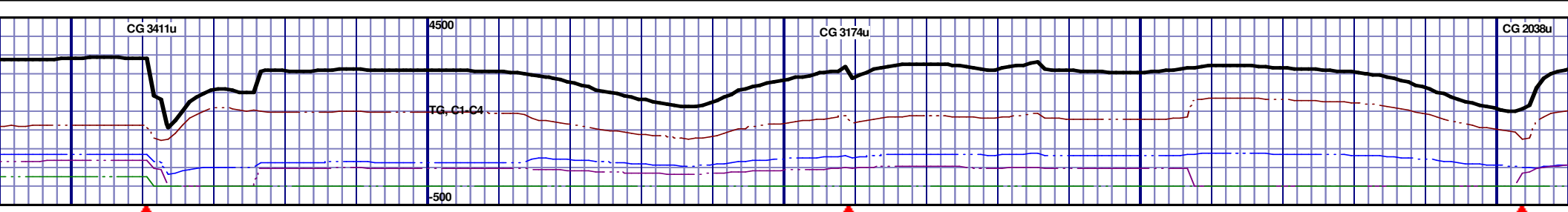
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INC 89.26 AZ 90.57
VS 1110.66

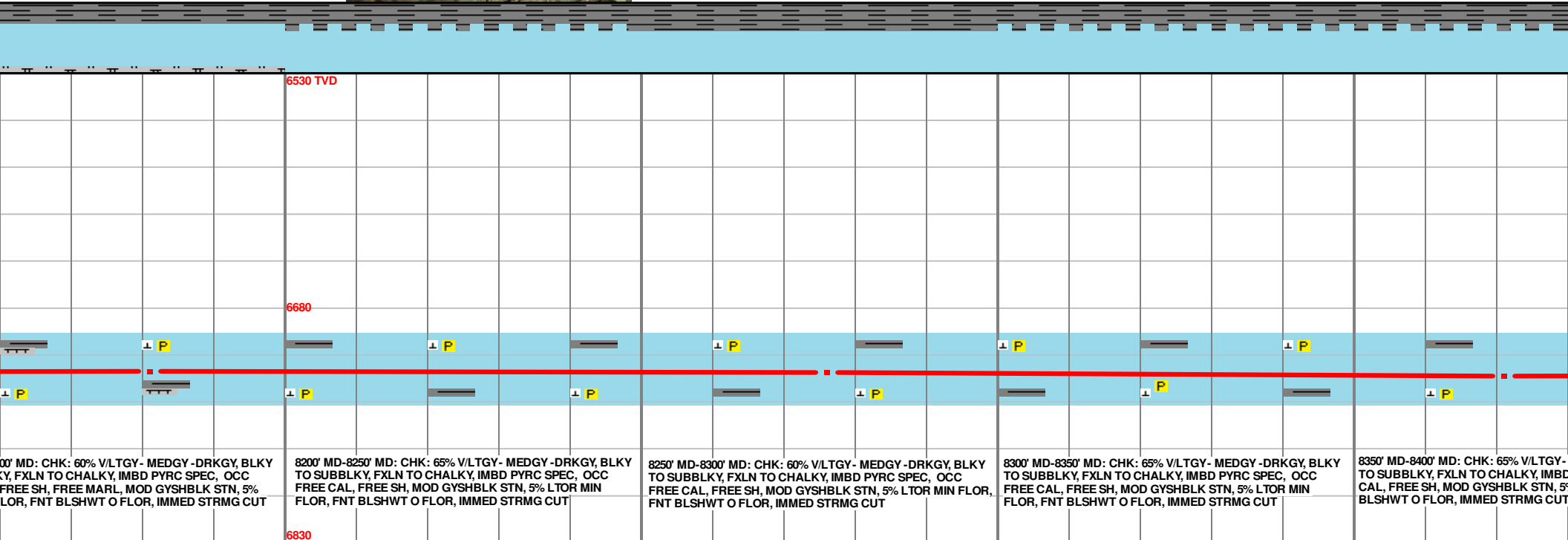
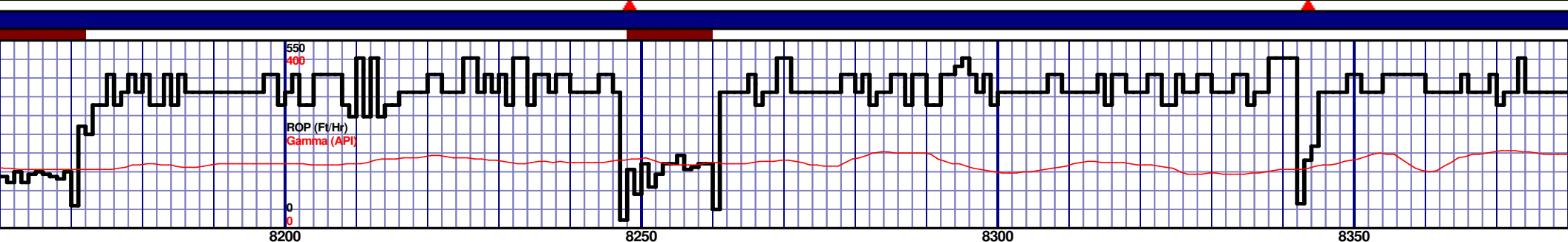
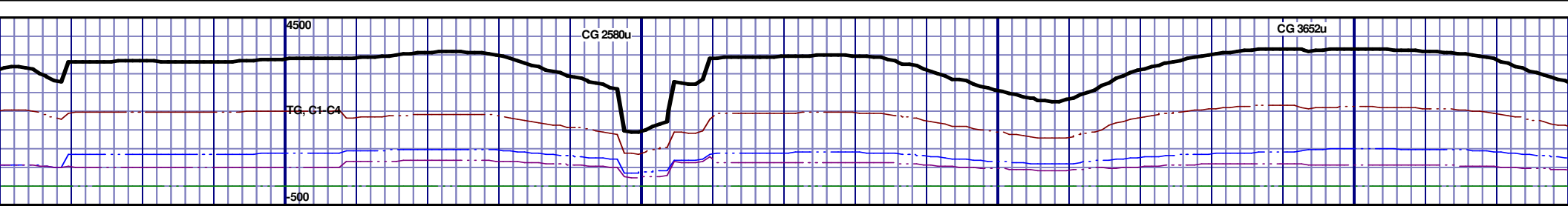
MD 7612 TVD 6723.76
INC 91.17 AZ 90.83
VS 1205.45

MD 7707 TVD 6723.76
INC 92.31 AZ 89.4
VS 1300.26



7750' MD-7800' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
7800' MD-7850' MD: CHK: 65% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
7850' MD-7900' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
7900' MD-7950' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									

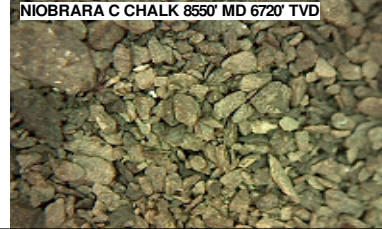
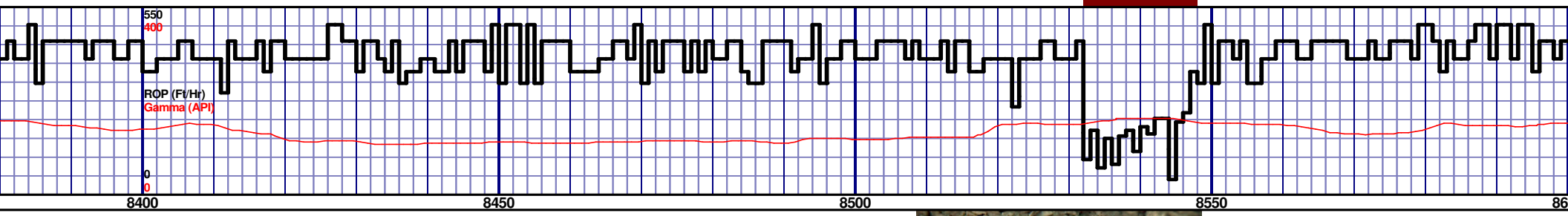
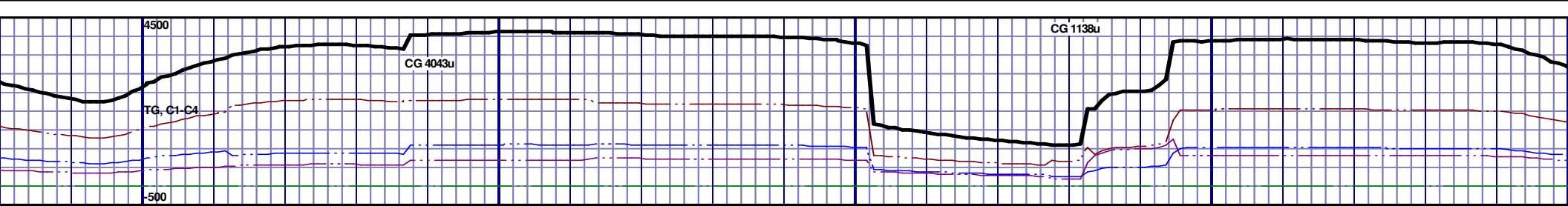




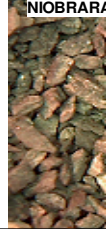
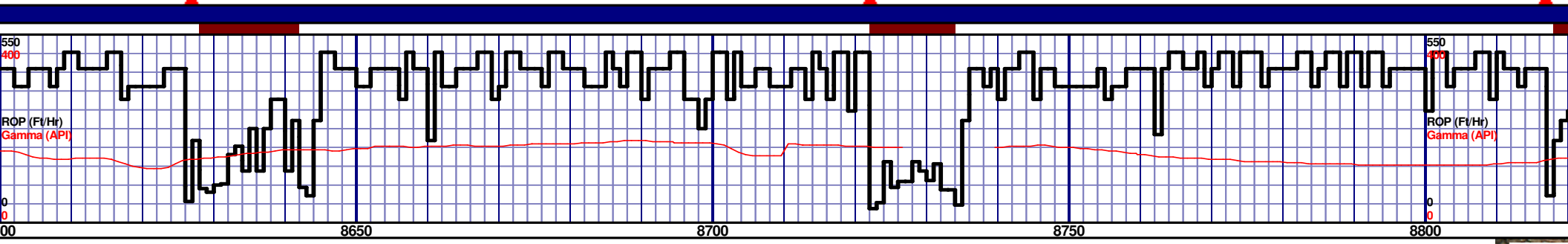
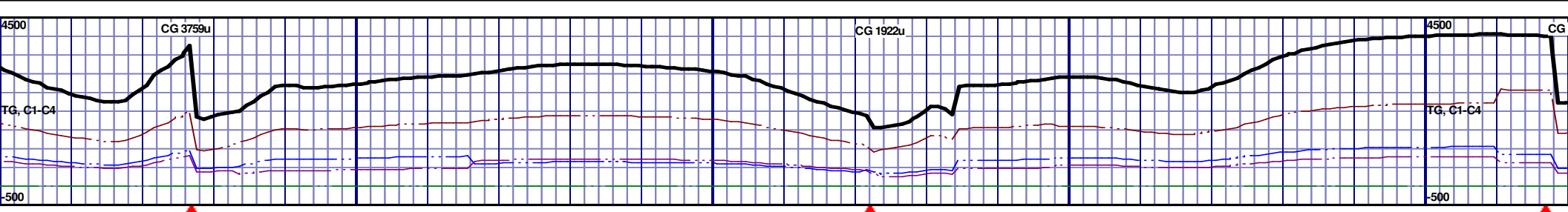
MD 8181 TVD 6720.13
INC 90 AZ 88.38
VS 1774.08

MD 8276 TVD 6721.31
INC 88.58 AZ 88.38
VS 1869.04

MD 8371 TVD 6721.31
INC 88.86 AZ 88.38
VS 1963.94



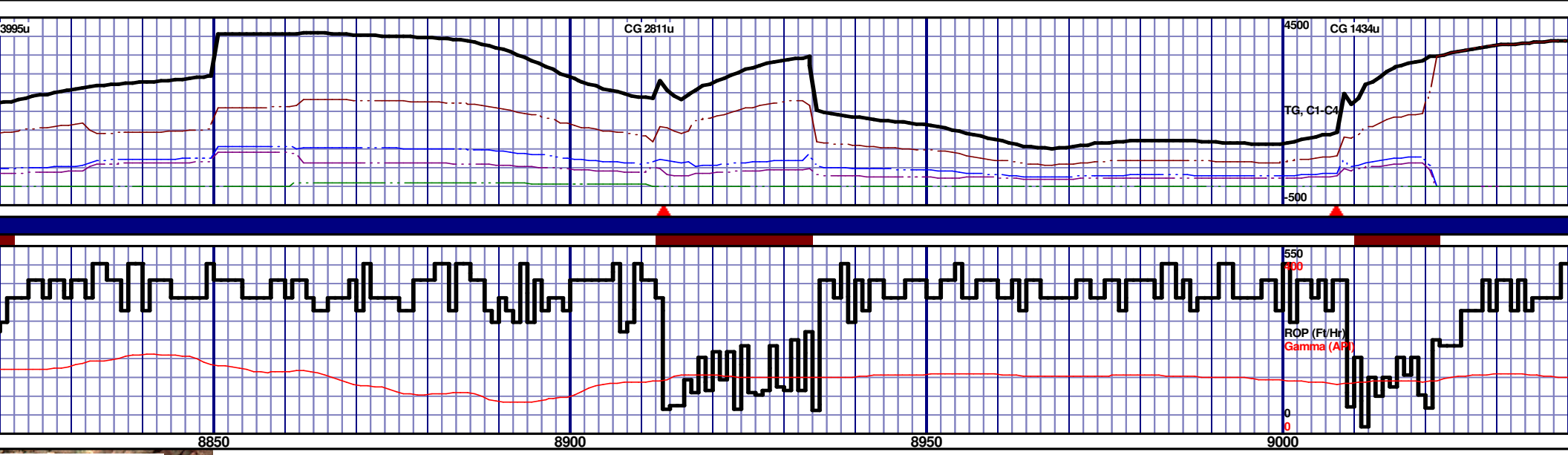
<p>6530 TVD</p> <p>6680</p> <p>6830</p>	<p>8400' MD-8450' MD: CHK: 55% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT</p>	<p>8450' MD-8500' MD: CHK: 60% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT</p>	<p>8500' MD-8550' MD: CHK: 55% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT</p>	<p>8550' MD-8600' MD: CHK: 60% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT</p>
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6530 TVD										6530 TVD									
6680										6680									
8600' MD-8650' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										8600' MD-8650' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
8650' MD-8700' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										8650' MD-8700' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
8700' MD-8750' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										8700' MD-8750' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
8750' MD-8800' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										8750' MD-8800' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
8800' MD-8850' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										8800' MD-8850' MD: CHK: 60% V/LTGY- MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
6830										6830									

MD 8655 TVD 6717.91
INC 90.71 AZ 89.71
VS 2247.7

MD 8750 TVD 6717.96
INC 82.93 AZ 89.95
VS 2342.58

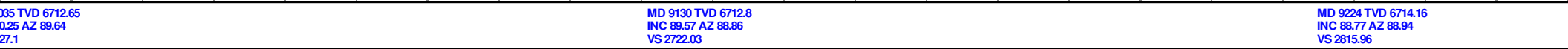
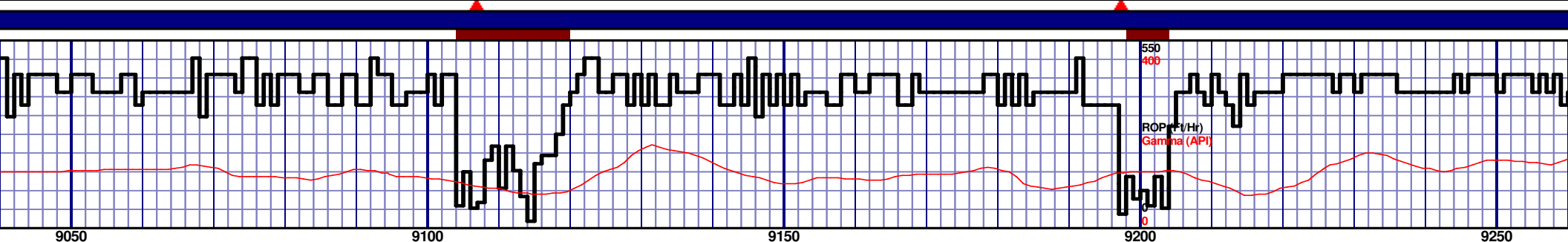


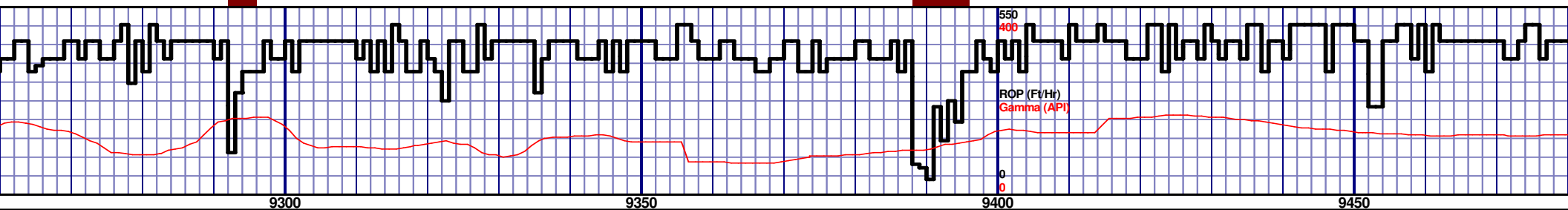
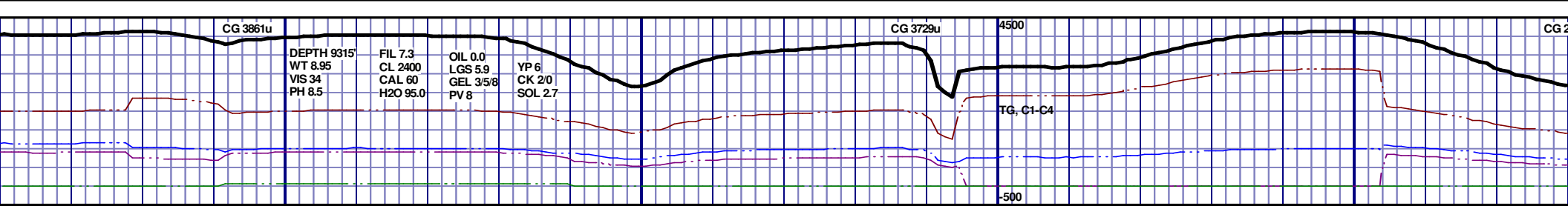
AC CHALK 8850' MD 6716' TVD					6530 TVD				
65% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					6680				
8850' MD-8900' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					6830				
8900' MD-8950' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
8950' MD-9000' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
9000' MD-9050' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									

MD 8845 TVD 6716.52
INC 92.5 AZ 90.82
VS 2437.38

MD 8940 TVD 6713.66
INC 90.96 AZ 89.25
VS 2532.2

MD 9040 TVD 6710.72
INC 89.96 AZ 88.75
VS 2637.2

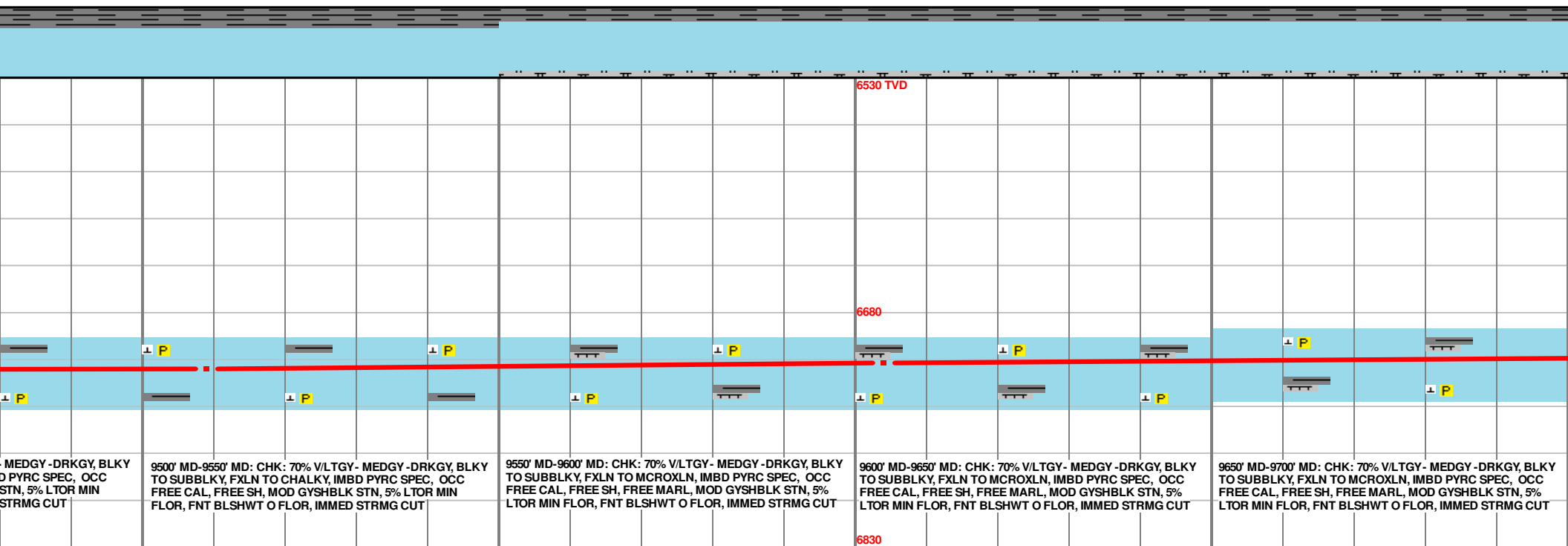
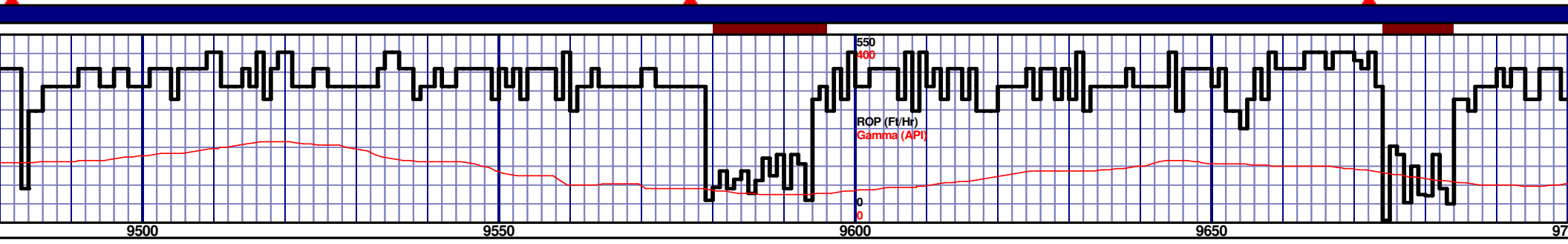
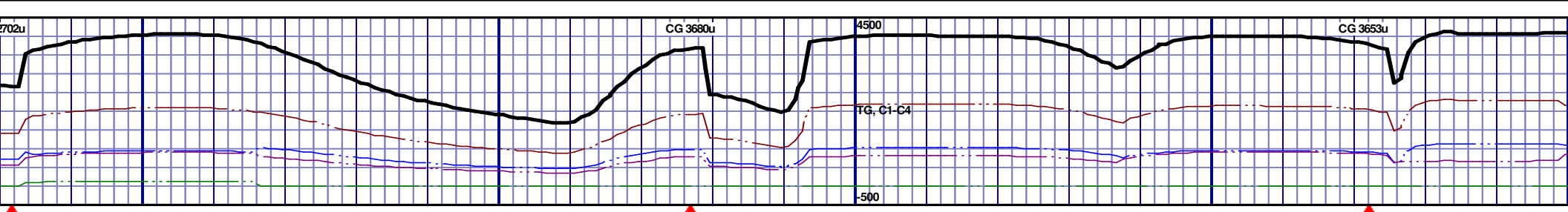




000' MD: CHK: 65% V/LTGY - MEDGY - DRKGY, BLKY KY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, WNT O FLOR, IMMED STRMG CUT					9300' MD-9350' MD: CHK: 70% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					9350' MD-9400' MD: CHK: 70% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					9400' MD-9450' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					9450' MD-9500' MD: CHK: 70% V/LTGY - TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				
6530 TVD					6680					6830					6830					6830				

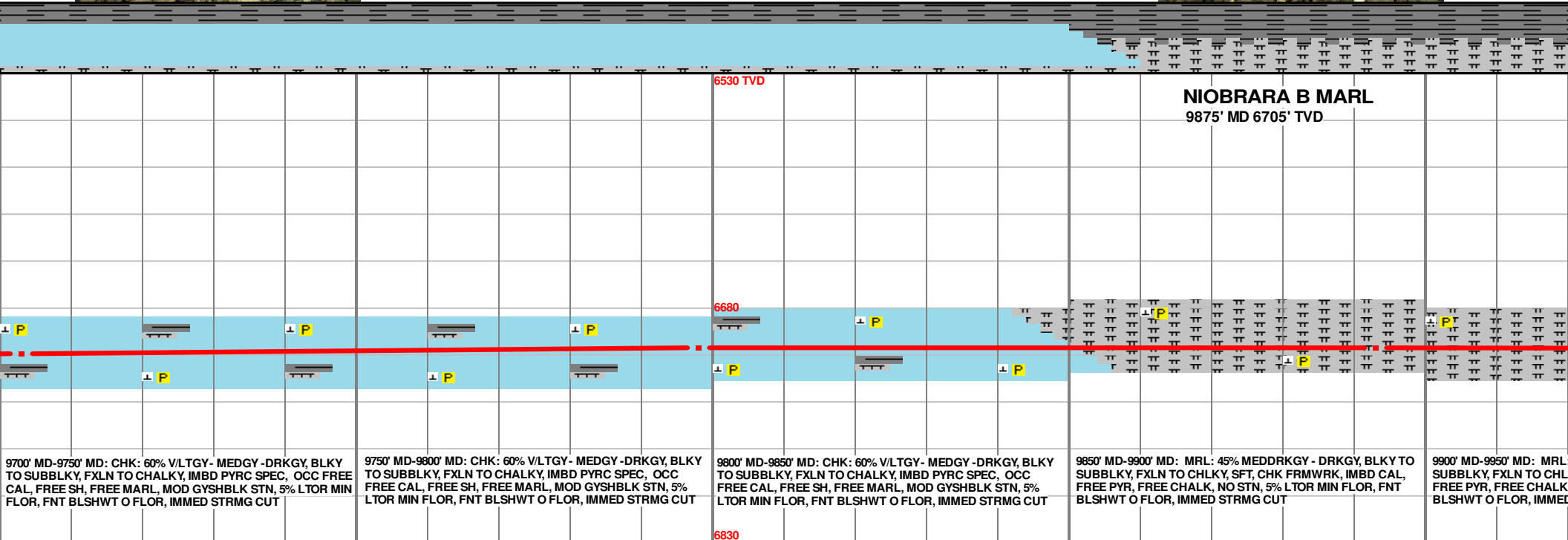
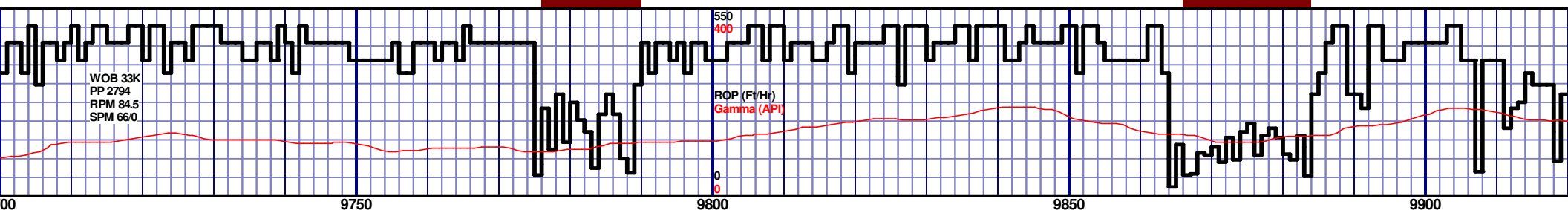
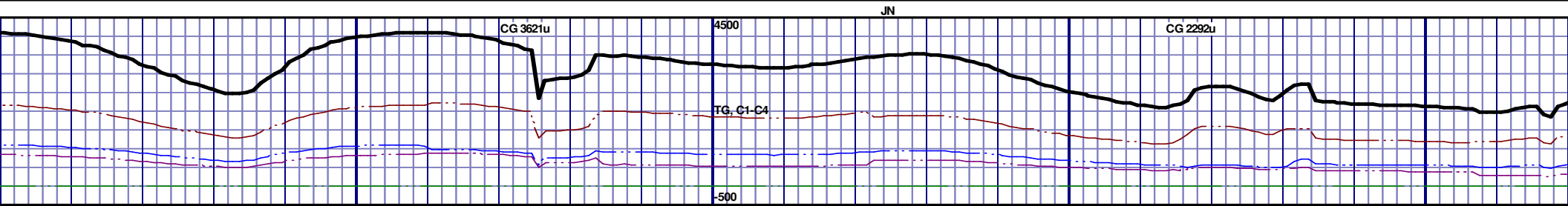
MD 9319 TVD 6715.82
INC 89.23 AZ 88.66
VS 2910.9

MD 9414 TVD 6717.05
INC 89.29 AZ 88.22
VS 3005.86



MD 9509 TVD 6715.64
INC 92.41 AZ 89.62
VS 3100.78

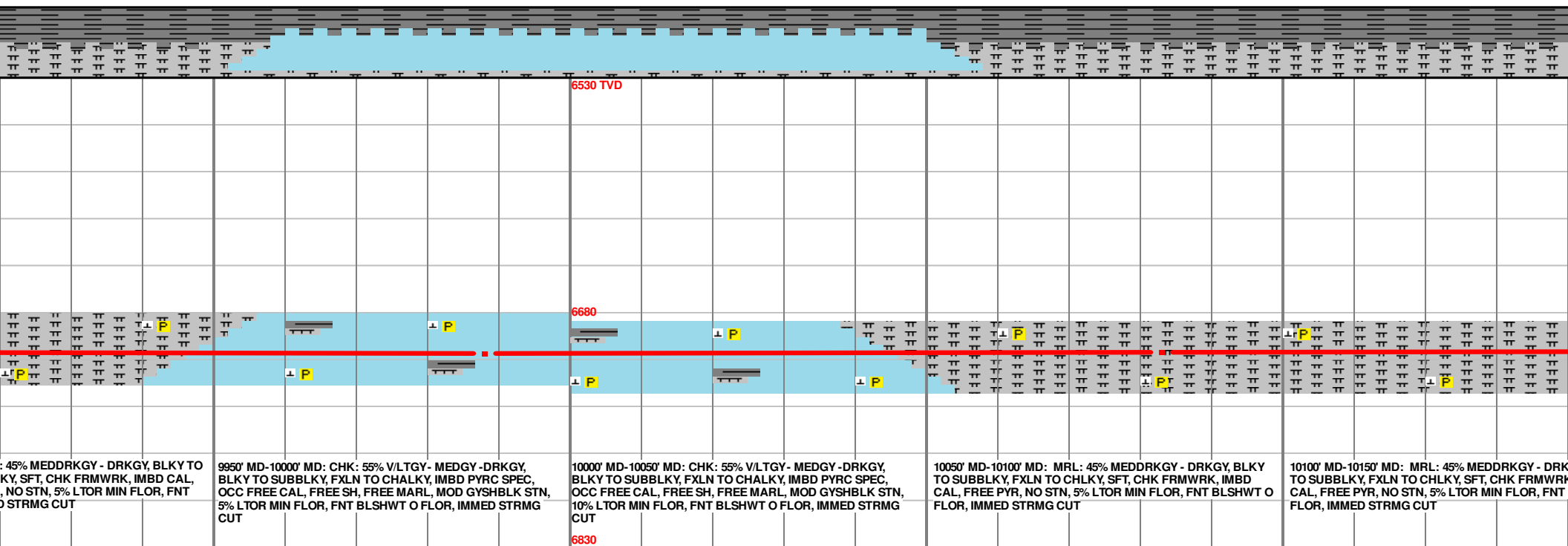
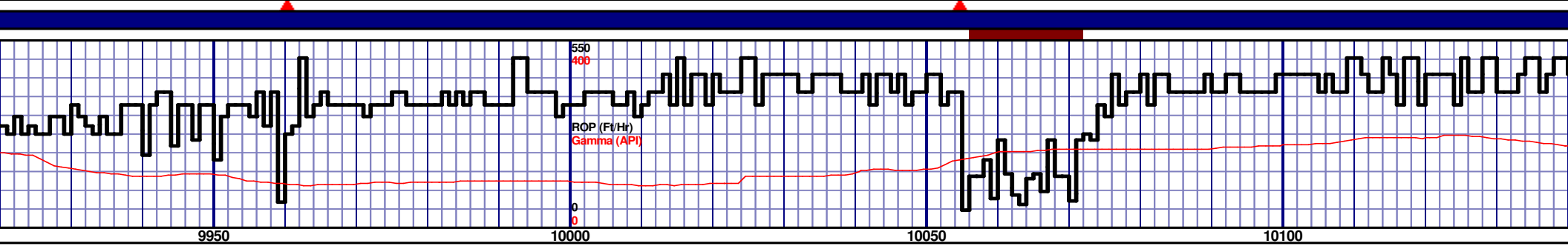
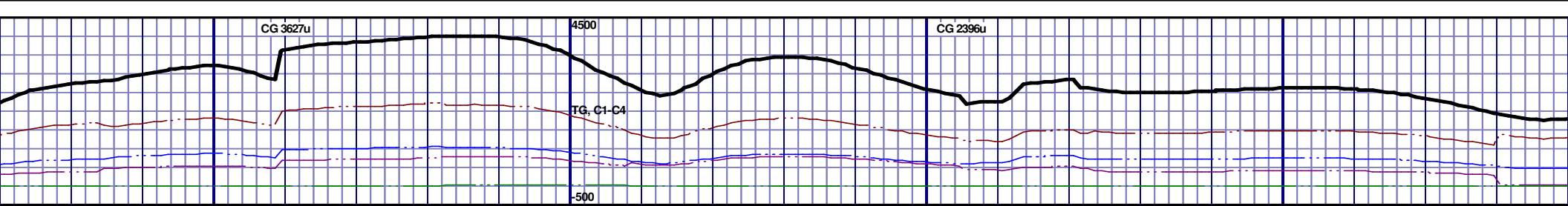
MD 9604 TVD 6712.54
INC 91.33 AZ 89.03
VS 3195.65



MD 9703 TVD 6708.15
INC 92.59 AZ 89.49
VS 3294.51

MD 9798 TVD 6705.75
INC 91.51 AZ 88.73
VS 3389.38

MD 9893 TVD 6705.66
INC 88.61 AZ 89.21
VS 3484.31



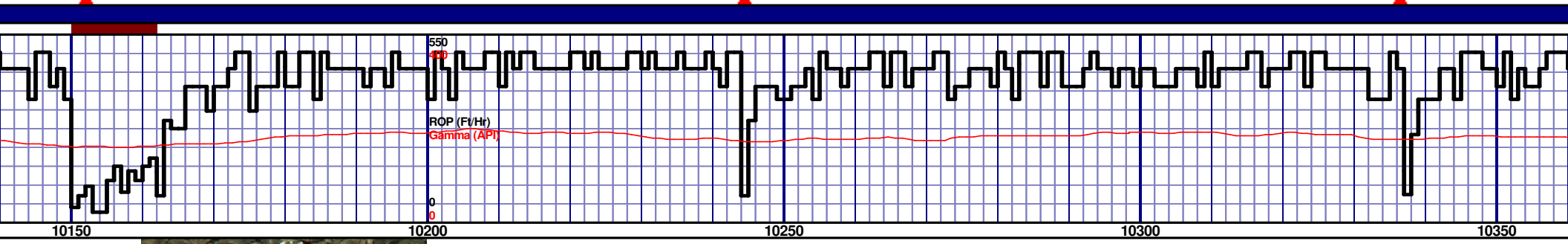
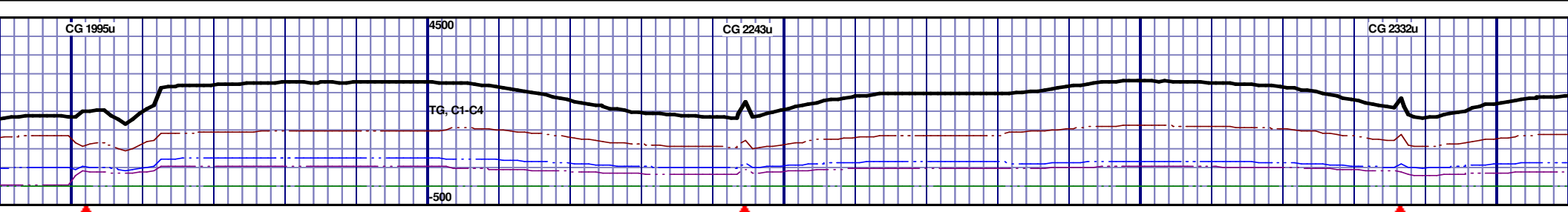
45% MEDDRKGY - DRKGY, BLKY TO
KY, SFT, CHK FRMWRK, IMBD CAL,
NO STN, 5% LTOR MIN FLOR, FNT
O STRMG CUT

9950' MD-10000' MD: CHK: 55% V/LTGY- MEDGY-DRKGY,
BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC,
OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN,
5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG
CUT

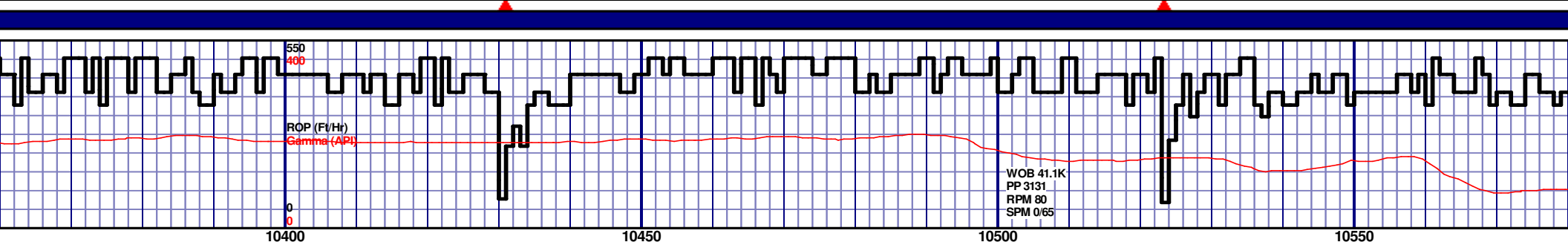
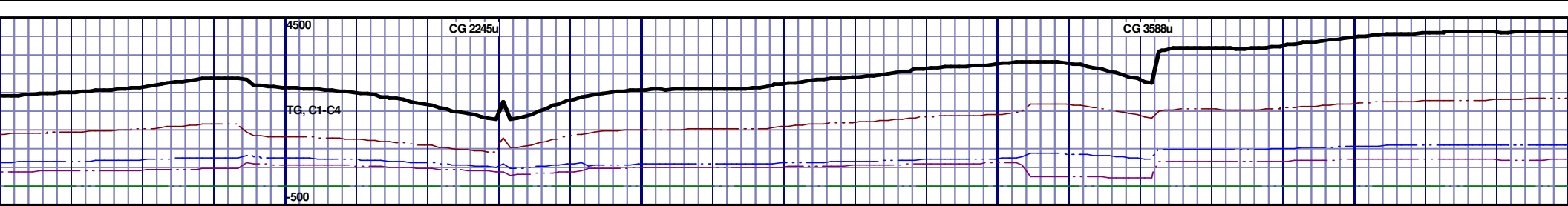
10000' MD-10050' MD: CHK: 55% V/LTGY- MEDGY-DRKGY,
BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC,
OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN,
10% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG
CUT

10050' MD-10100' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY
TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD
CAL, FREE PYR, NO STN, 5% LTOR MIN FLOR, FNT BLSHWT O
FLOR, IMMED STRMG CUT

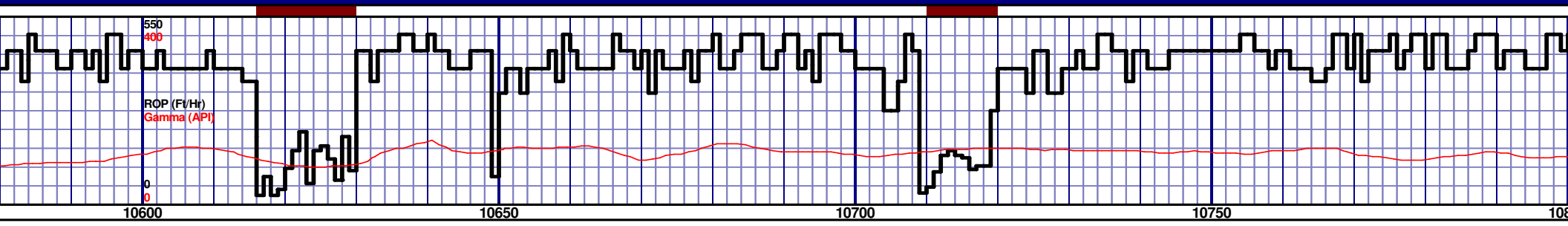
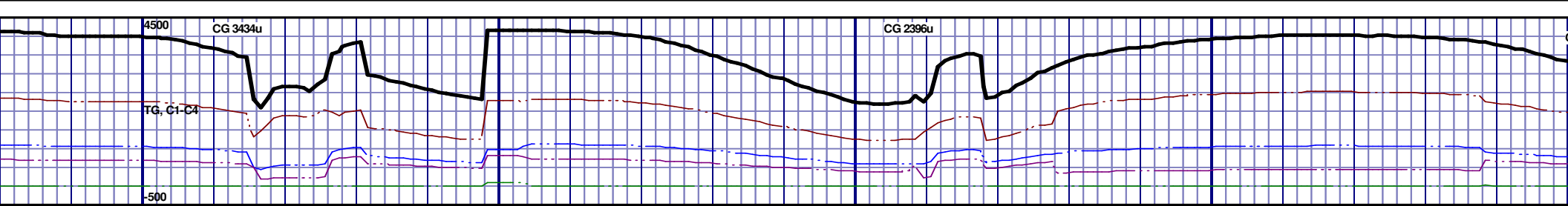
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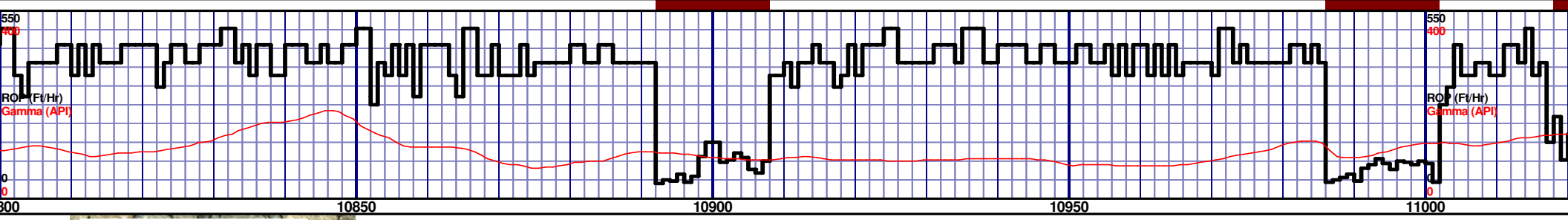
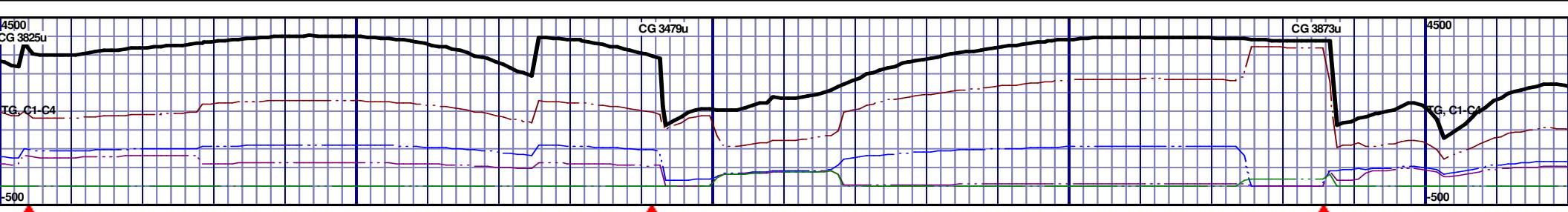
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6680																			
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10400' MD-10450' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, MOD GYSHBLK STN, 10% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT																			
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MD 10639 TVD 6706.44
INC 91.29 AZ 88.8
VS 4229.25

MD 10732 TVD 6704.1
INC 91.6 AZ 89.13
VS 4322.17

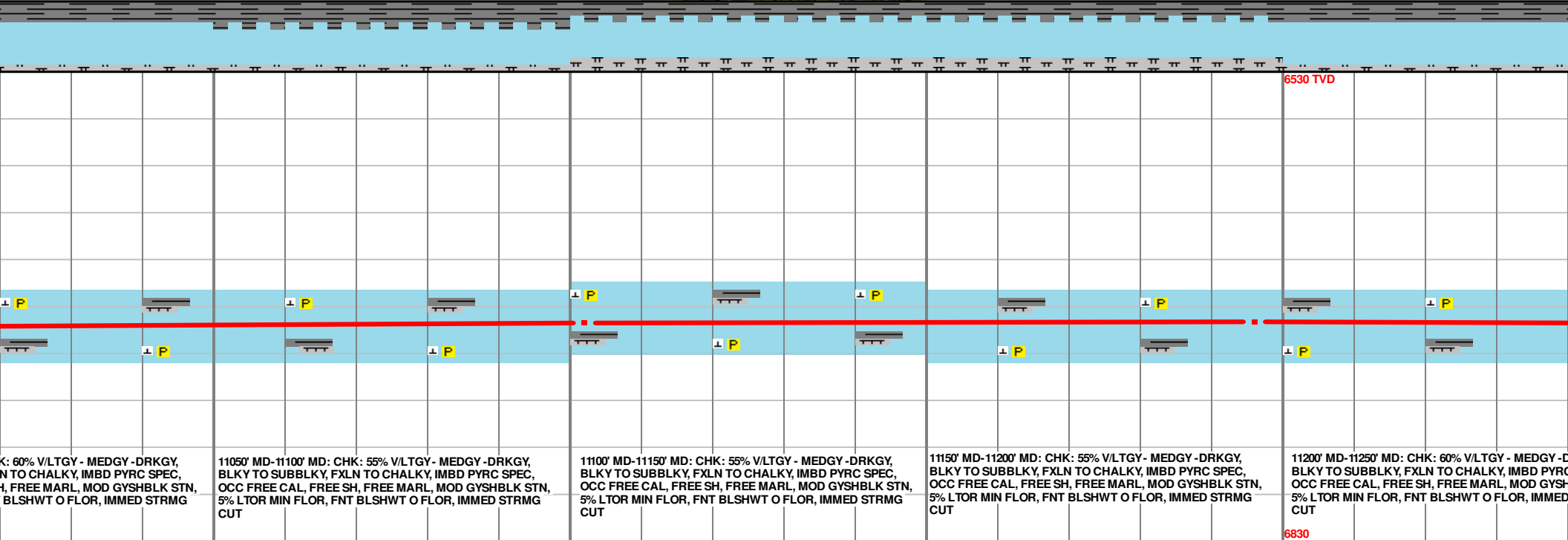
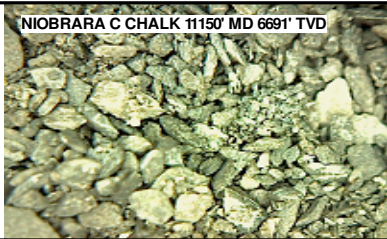
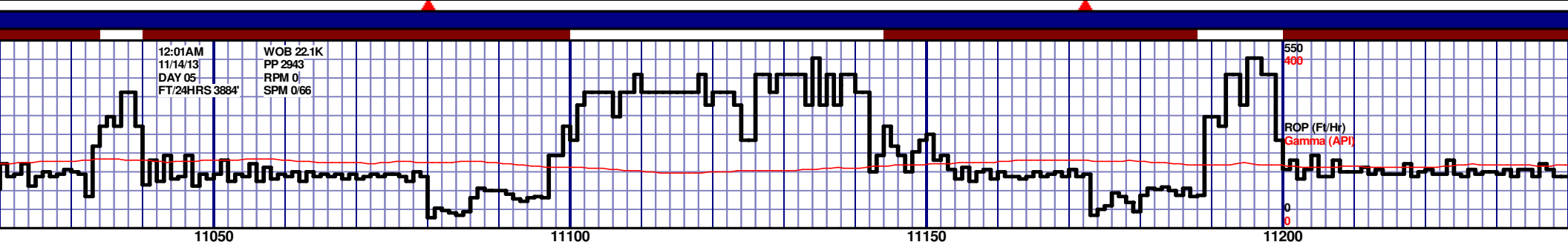
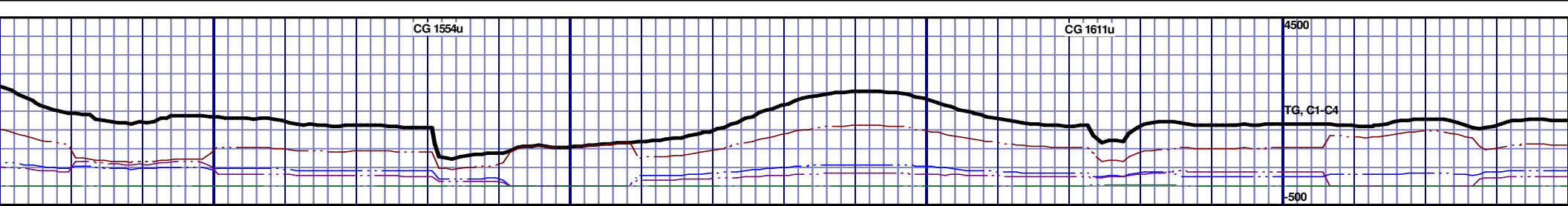


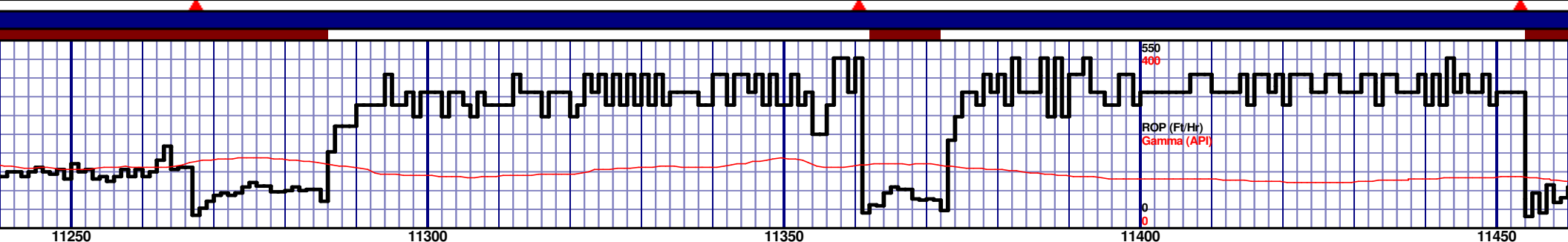
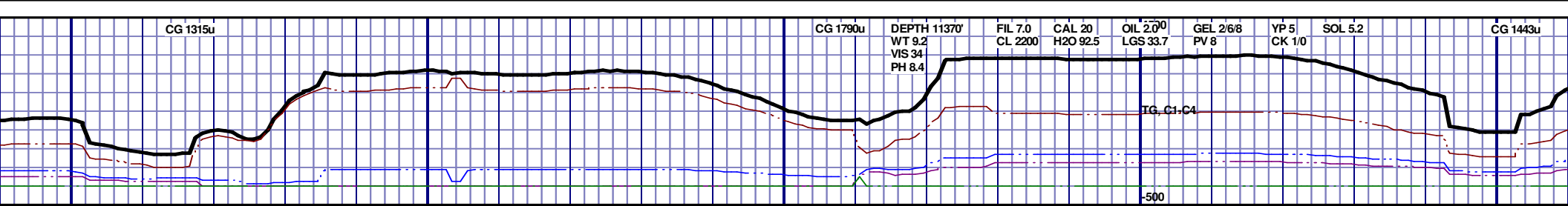
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MD 10825 TVD 6700.19
INC 93.21 AZ 88.97
VS 4415.02

MD 10917 TVD 6695.69
INC 92.4 AZ 88.38
VS 4506.87

MD 11010 TVD 6690.19
INC 91.67 AZ 88.97
VS 4599.79





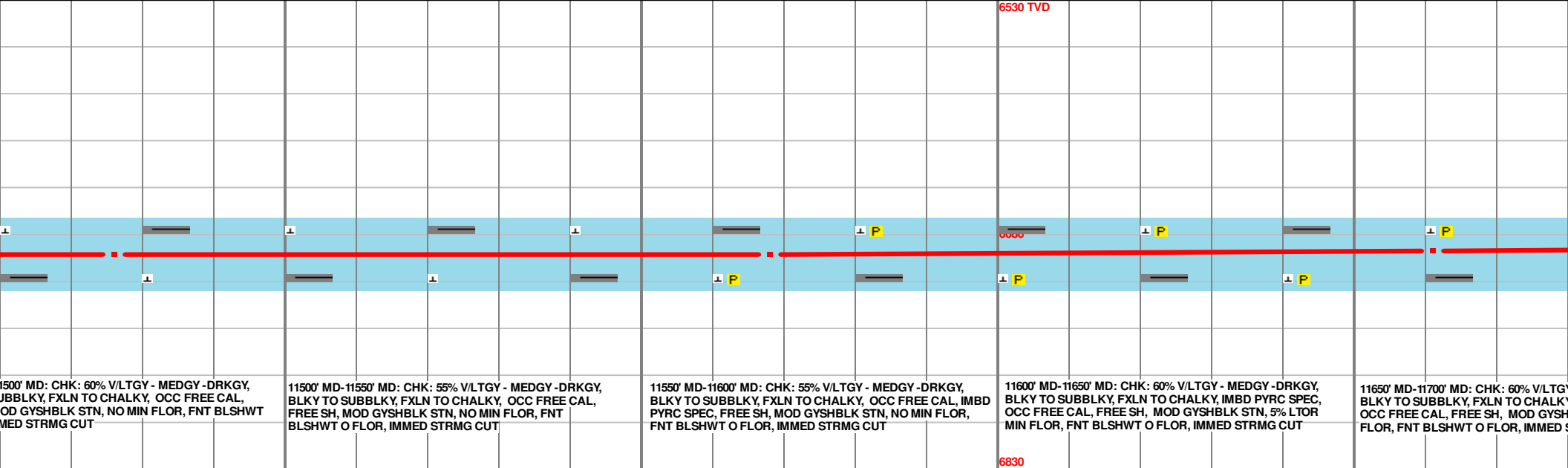
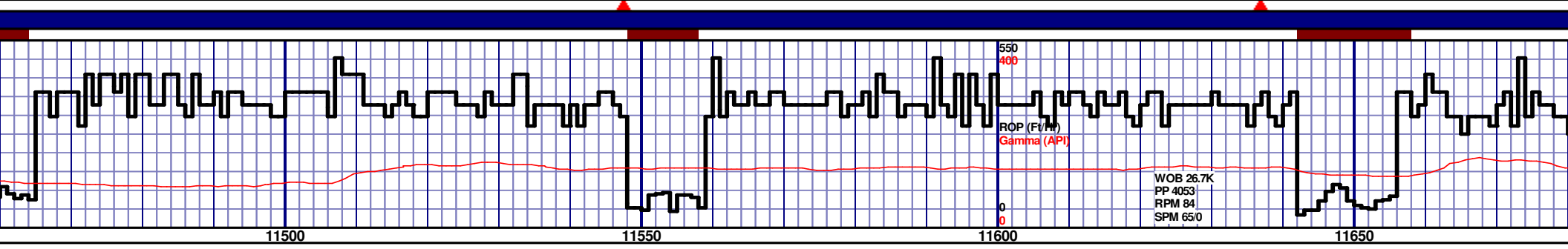
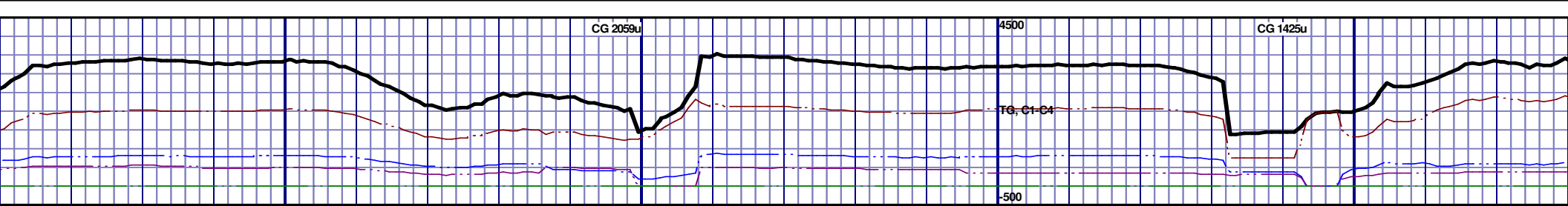
NIOBARRA C CHALK 11450' MD 6693' TVD.



6530 TVD					6630				
DRKGY, C SPEC, IBLK STN, STRMG	11250' MD-11300' MD: CHK: 70% V/LTGY - MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, NO MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT	11300' MD-11350' MD: CHK: 65% V/LTGY - MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, NO MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT	11350' MD-11400' MD: CHK: 65% V/LTGY - MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, NO MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT	11400' MD-11450' MD: CHK: 60% V/LTGY - MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, NO MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT	11450' MD-11500' MD: CHK: 60% V/LTGY - MEDGY-DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, NO MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				

MD 11289 TVD 6691.06
INC 87.63 AZ 89.05
VS 4878.38

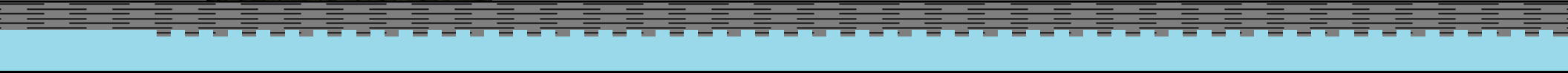
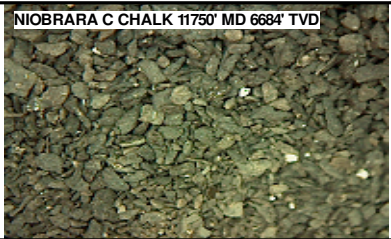
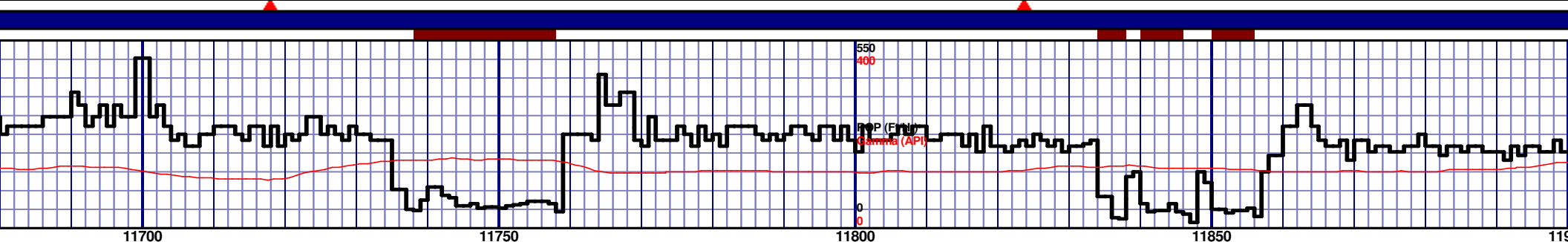
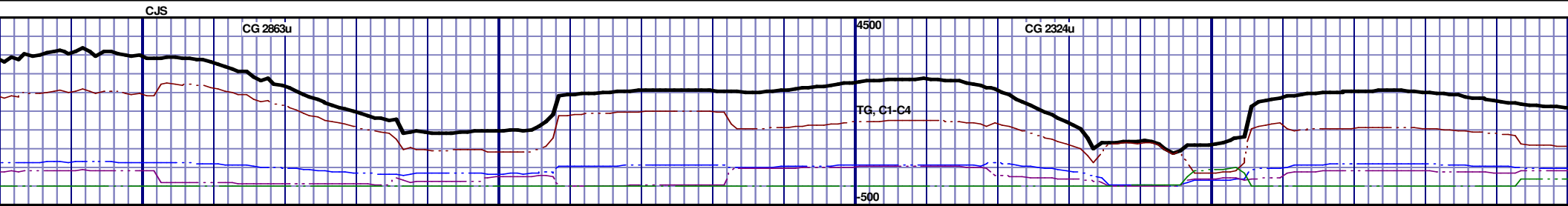
MD 11382 TVD 6692.99
INC 90 AZ 88.93
VS 4971.3



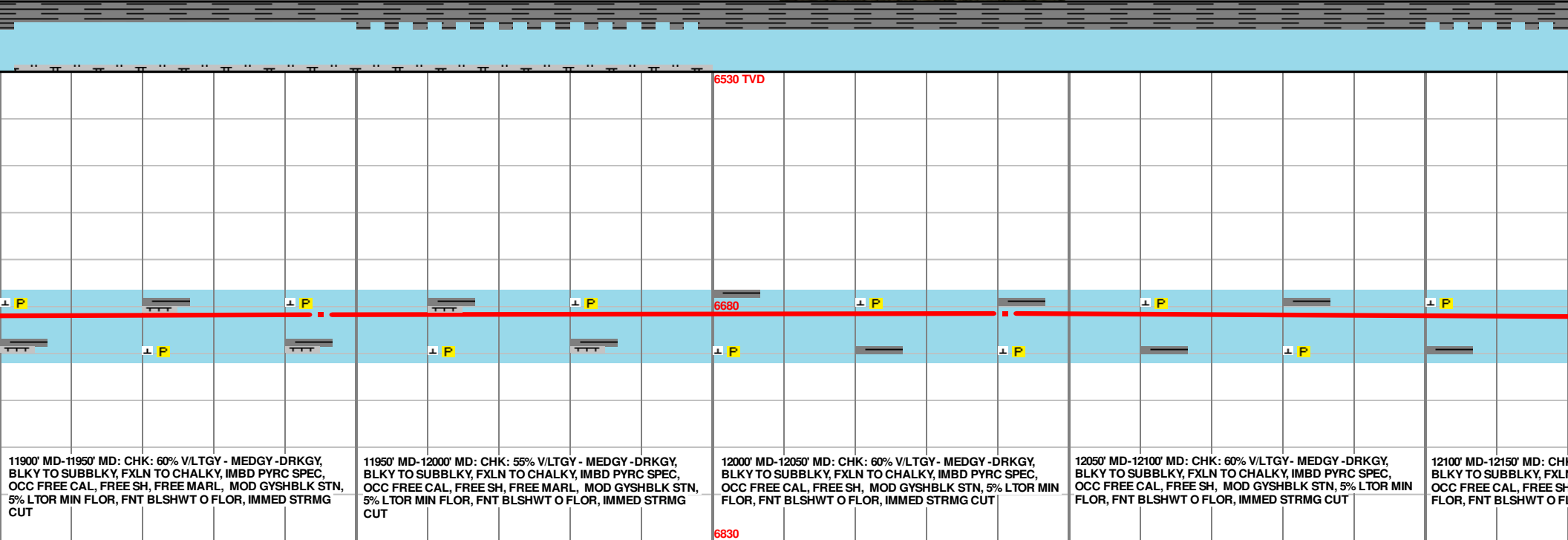
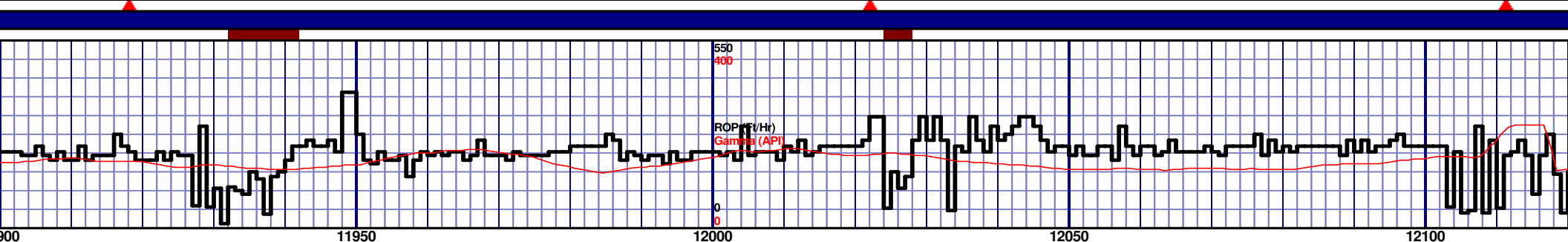
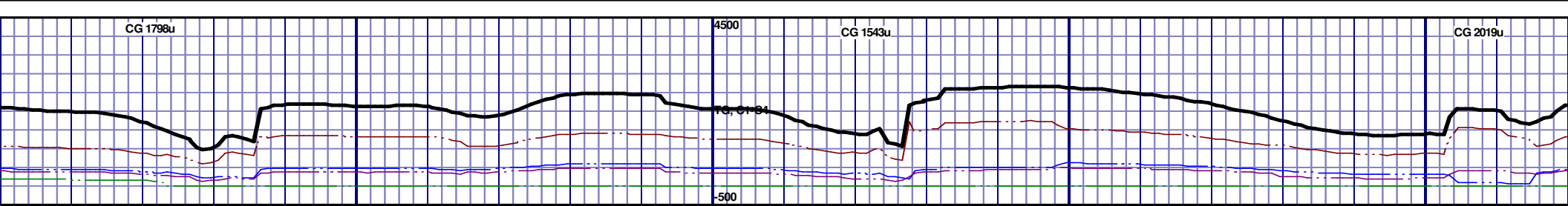
MD 11476 TVD 6692.99
INC 90 AZ 89.09
VS 5065.24

MD 11568 TVD 6692.96
INC 90.03 AZ 90.2
VS 5157.14

MD 11661 TVD 6690.69
INC 92.77 AZ 89.19
VS 5249.99



					6530 TVD									
					6680									
					6830									
Y - MEDGY - DRKGY, Y, IMBD PYRC SPEC, BLK STN, 5% LTOR MIN STRMG CUT					11700' MD-11750' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					11750' MD-11800' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				



11900' MD-11950' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

11950' MD-12000' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

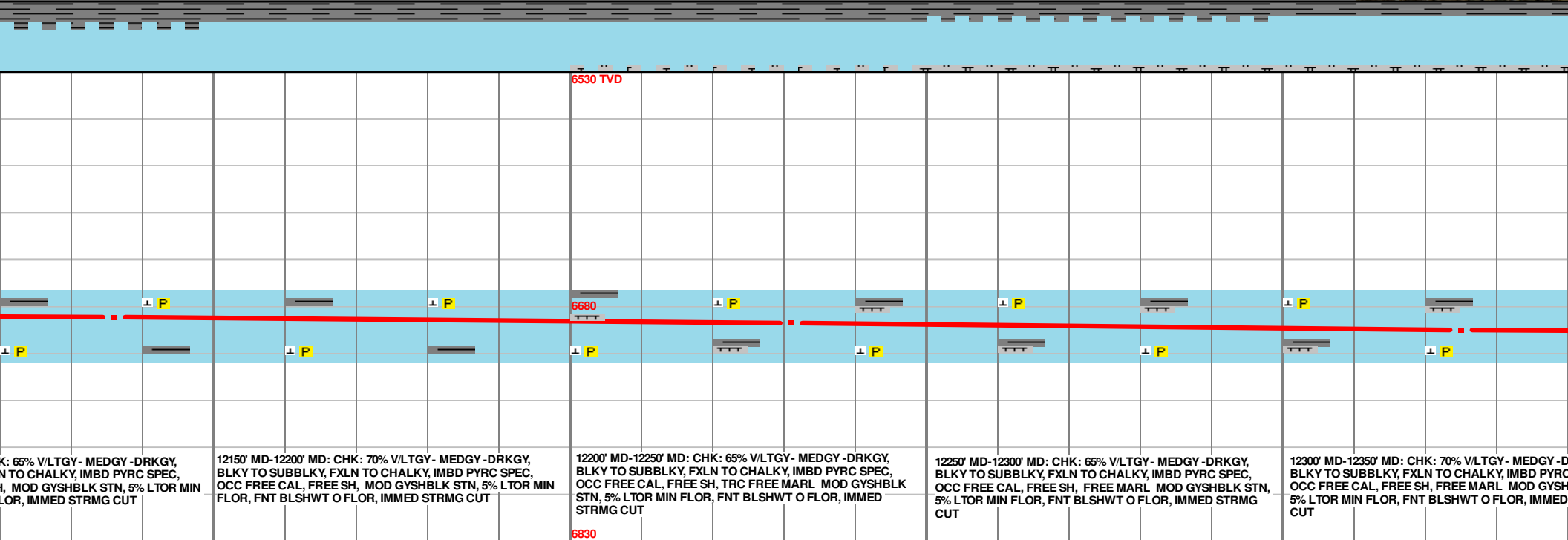
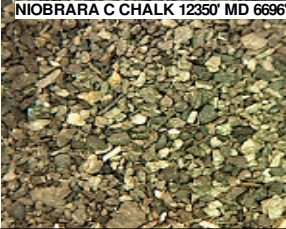
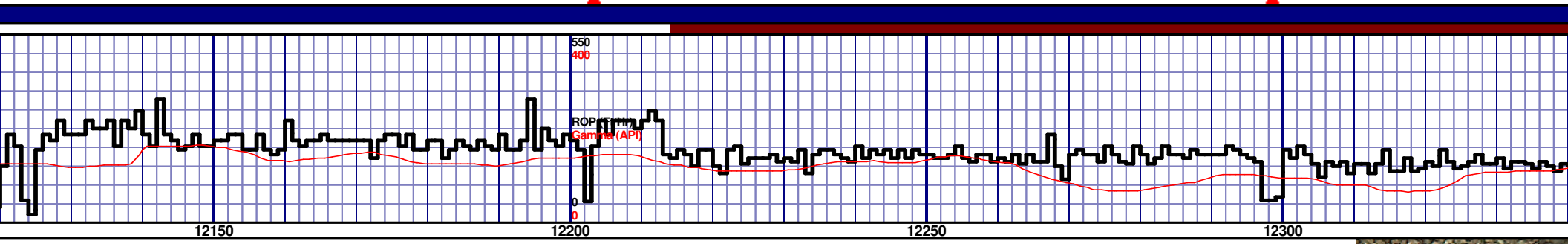
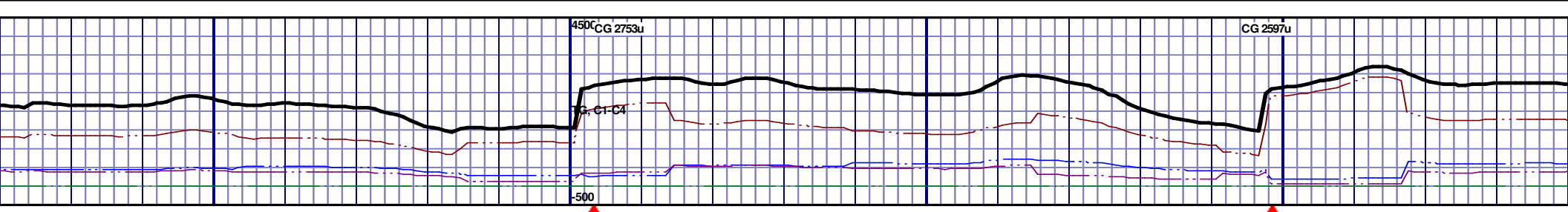
12000' MD-12050' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

12050' MD-12100' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

12100' MD-12150' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

MD 11945 TVD 6685.52
INC 92.19 AZ 90.67
VS 5533.73

MD 12041 TVD 6684.4
INC 89.14 AZ 88.44
VS 5629.61



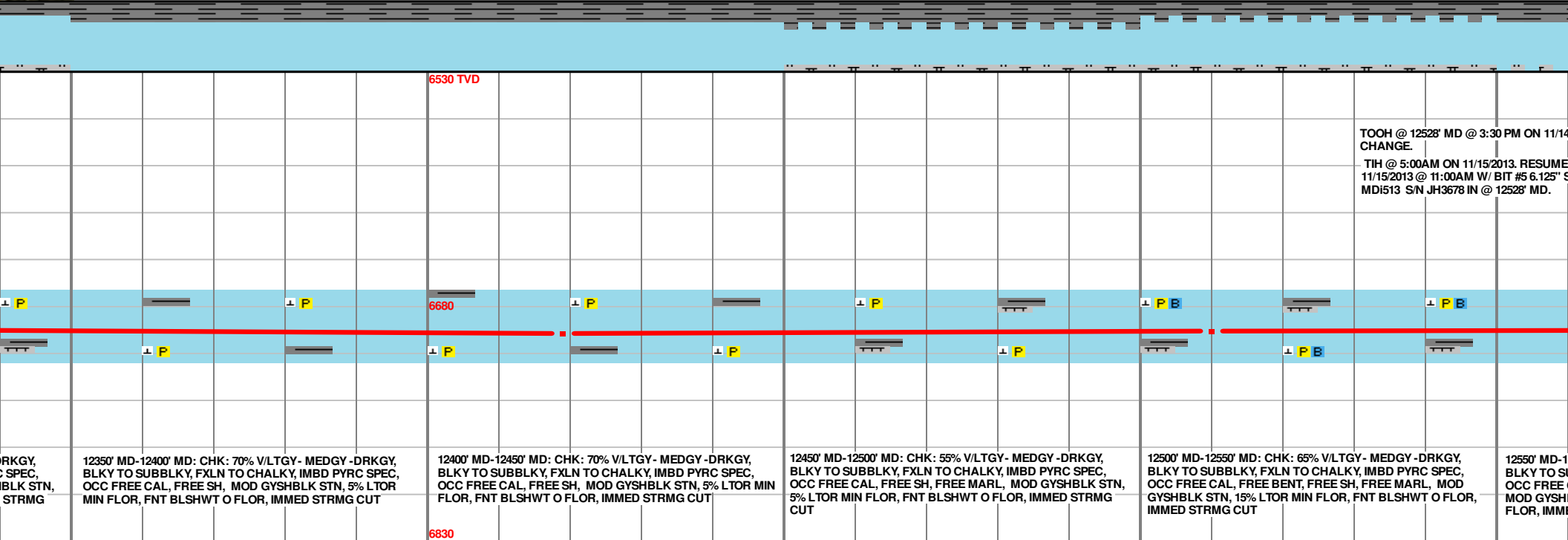
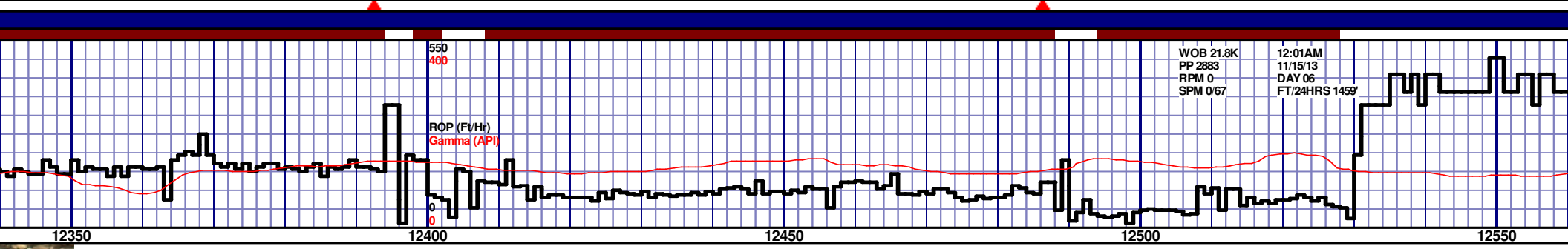
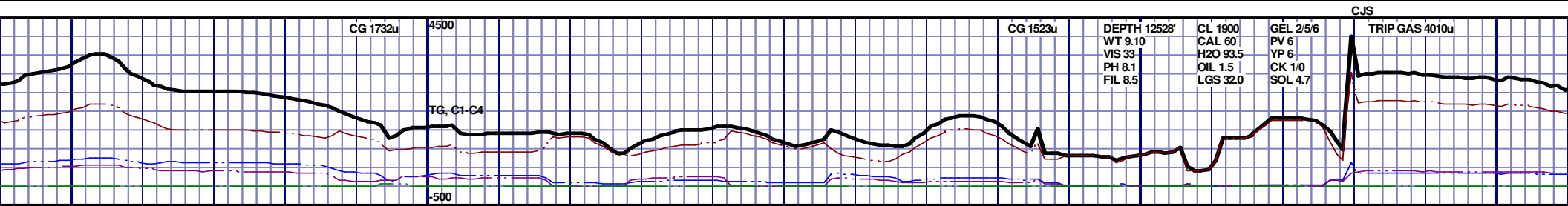
CHK: 65% V/LTGY - MEDGY - DRKGY,
N TO CHALKY, IMBD PYRC SPEC,
I, MOD GYSHBLK STN, 5% LTOR MIN
FLOR, IMMED STRMG CUT

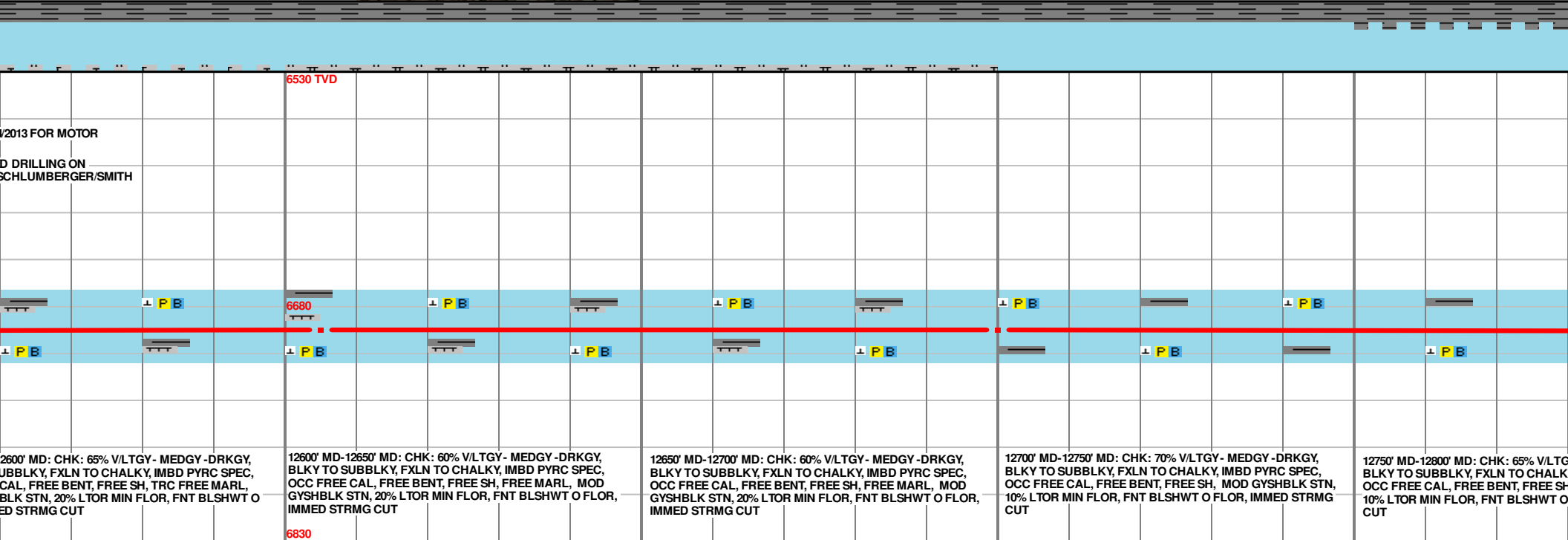
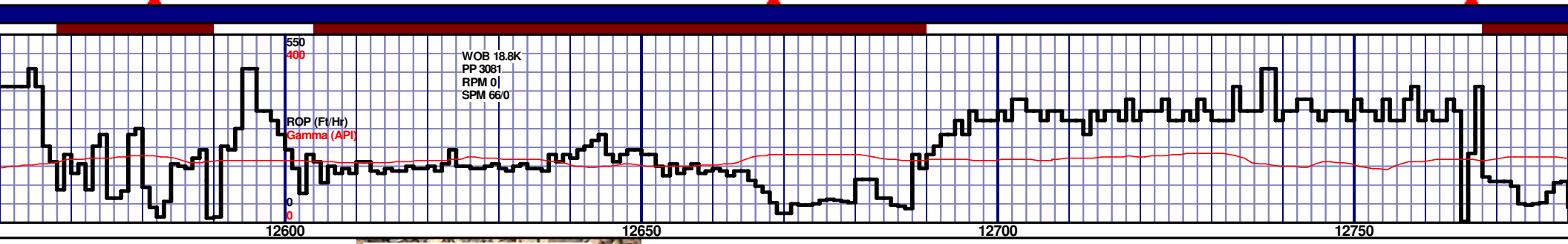
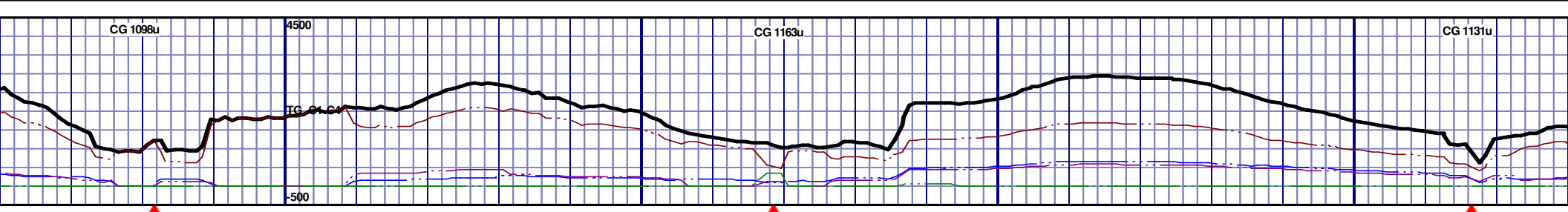
12150' MD-12200' MD: CHK: 70% V/LTGY - MEDGY - DRKGY,
BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC,
OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 5% LTOR MIN
FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

12200' MD-12250' MD: CHK: 65% V/LTGY - MEDGY - DRKGY,
BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC,
OCC FREE CAL, FREE SH, TRC FREE MARL MOD GYSHBLK
STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED
STRMG CUT

12250' MD-12300' MD: CHK: 65% V/LTGY - MEDGY - DRKGY,
BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC,
OCC FREE CAL, FREE SH, FREE MARL MOD GYSHBLK STN,
5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG
CUT

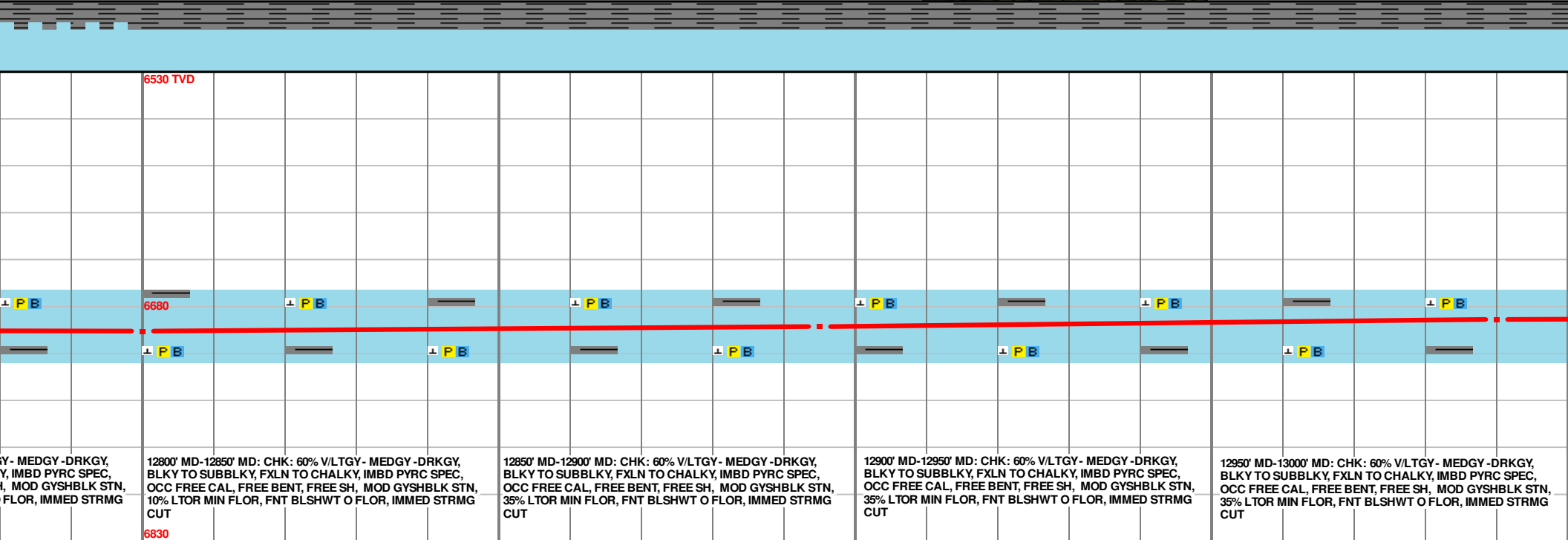
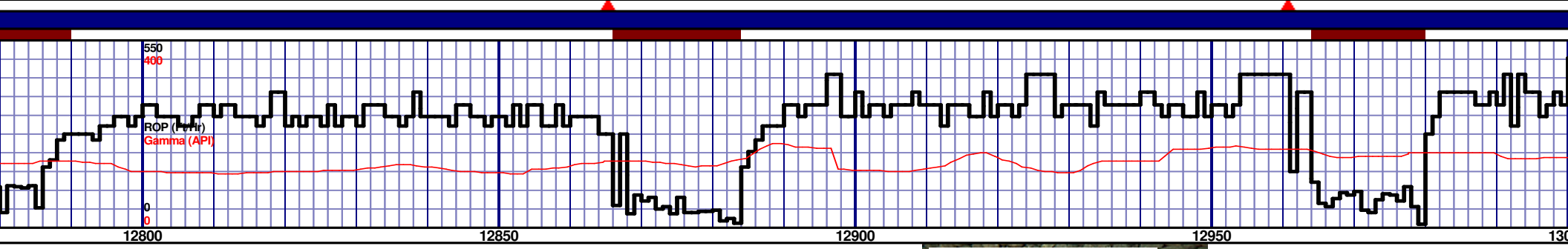
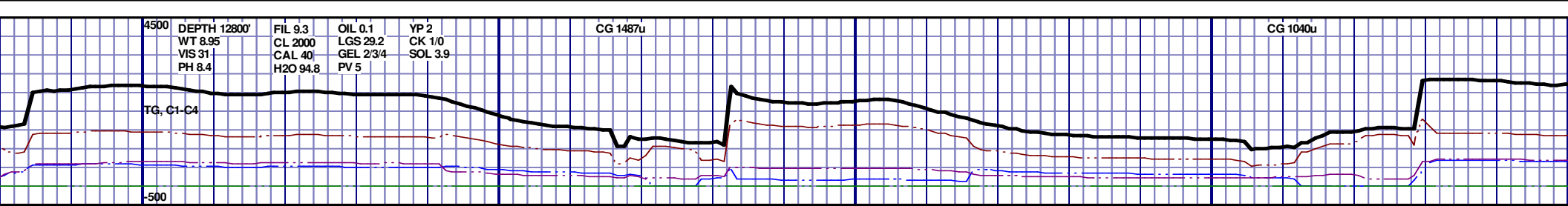
12300' MD-12350' MD: CHK: 70% V/LTGY - MEDGY - D
BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC
OCC FREE CAL, FREE SH, FREE MARL MOD GYSH
5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED
CUT





MD 12605 TVD 6694.89
INC 91.05 AZ 87.64
VS 6193.17

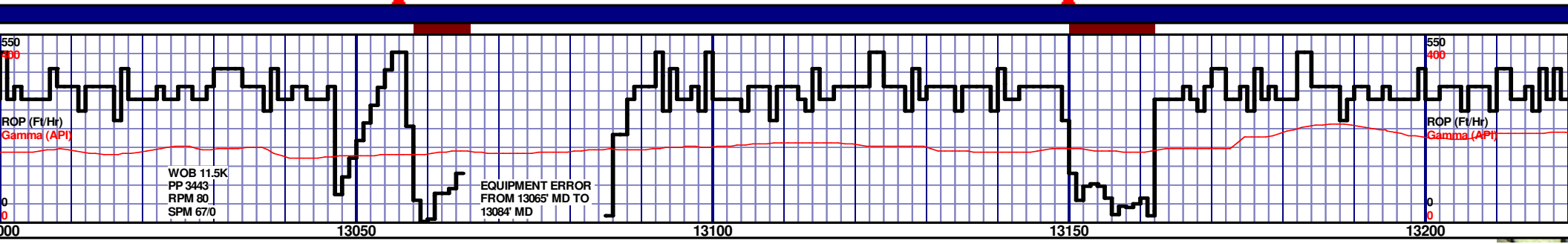
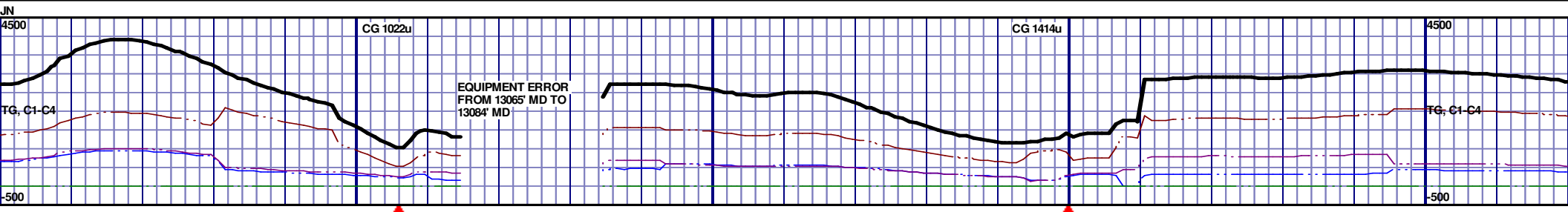
MD 12700 TVD 6695.05
INC 88.76 AZ 85.94
VS 6288.16

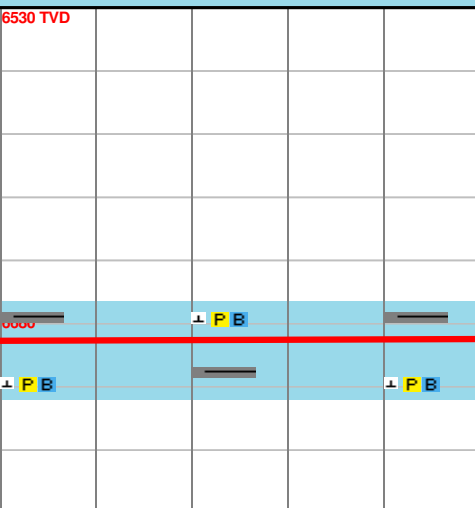
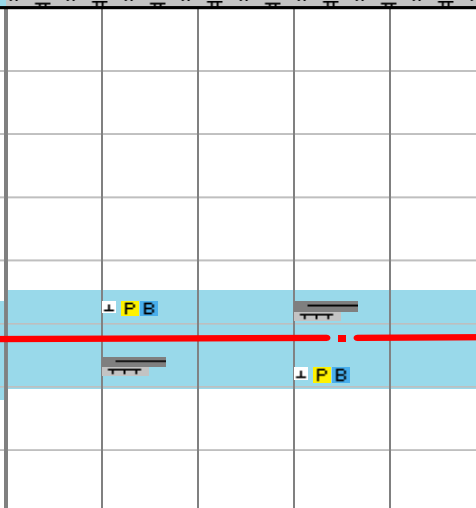
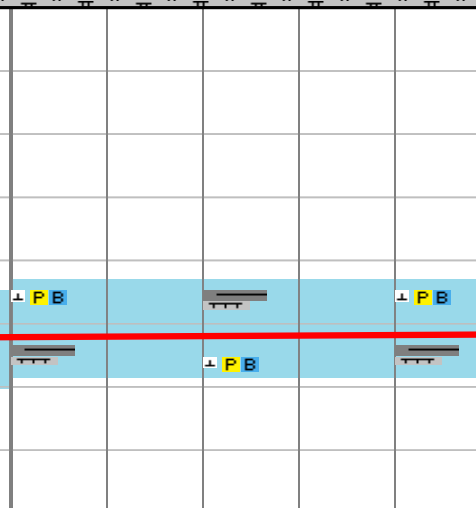
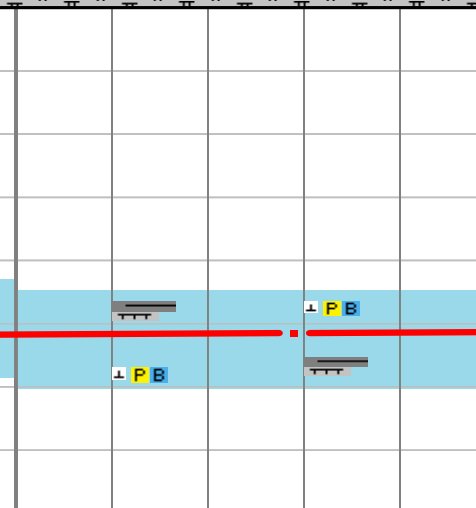
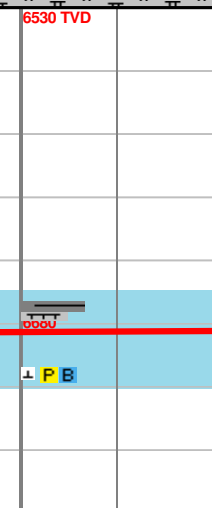
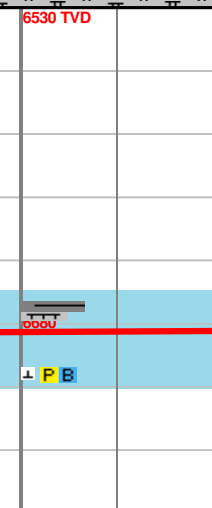


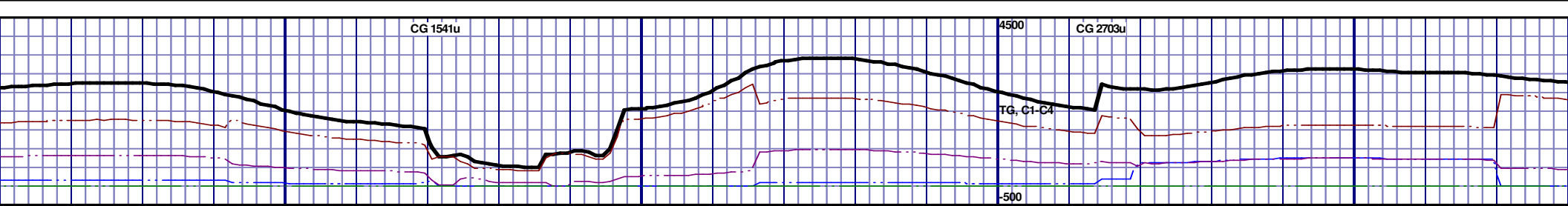
MD 12800 TVD 6695.62
INC 90.59 AZ 87.82
VS 6368.15

MD 12895 TVD 6692.75
INC 92.87 AZ 90.19
VS 6463.03

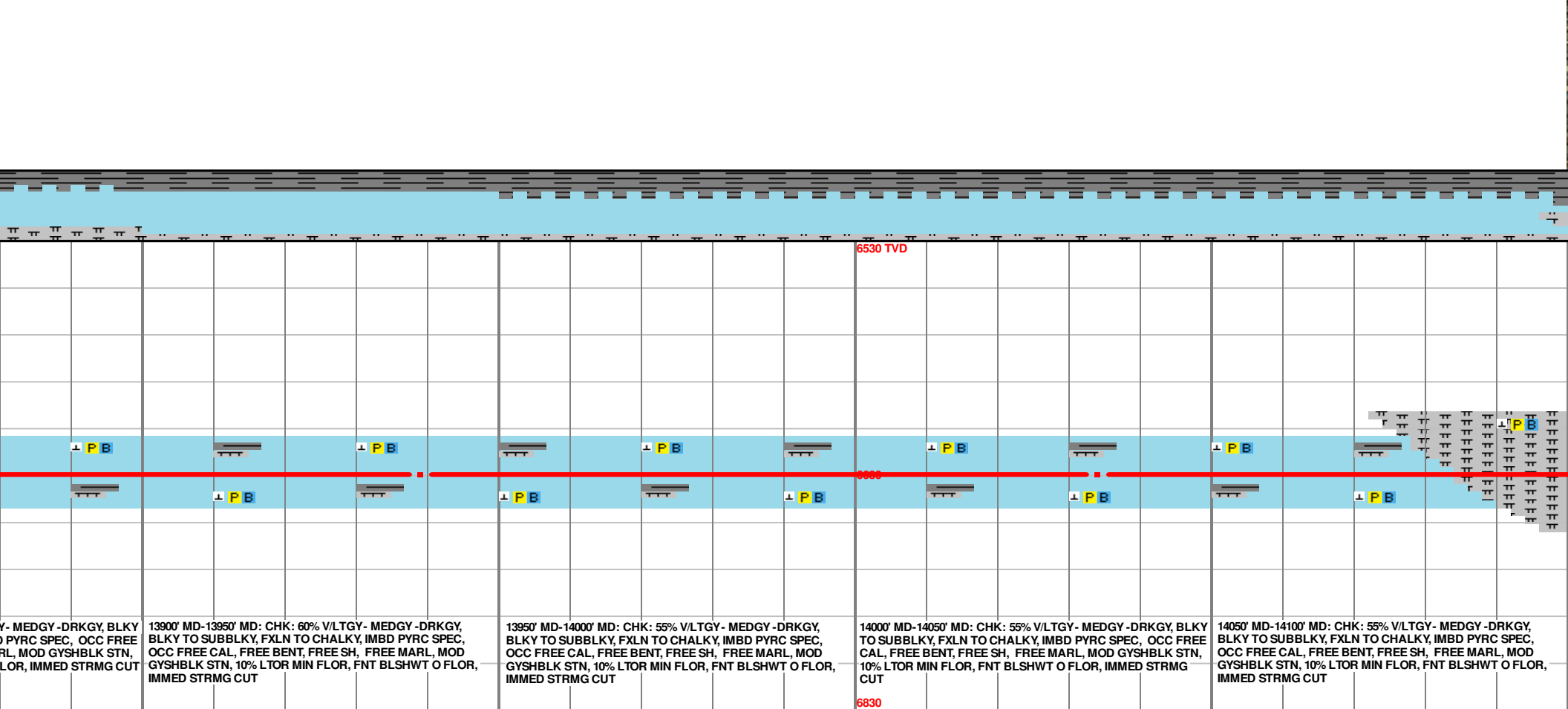
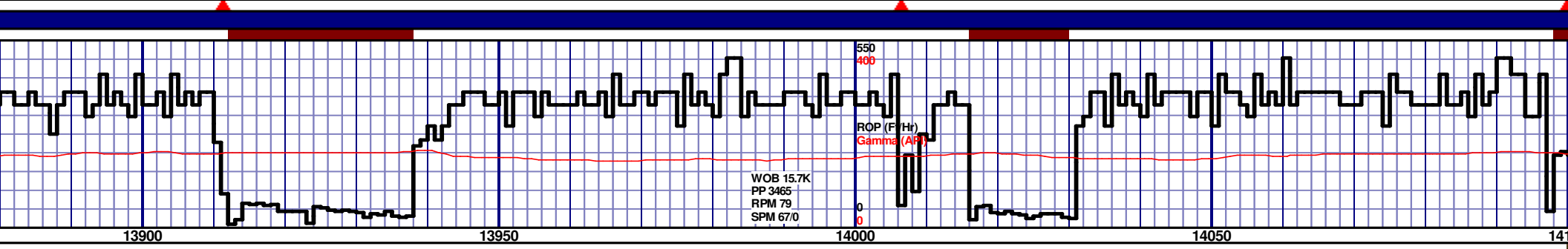
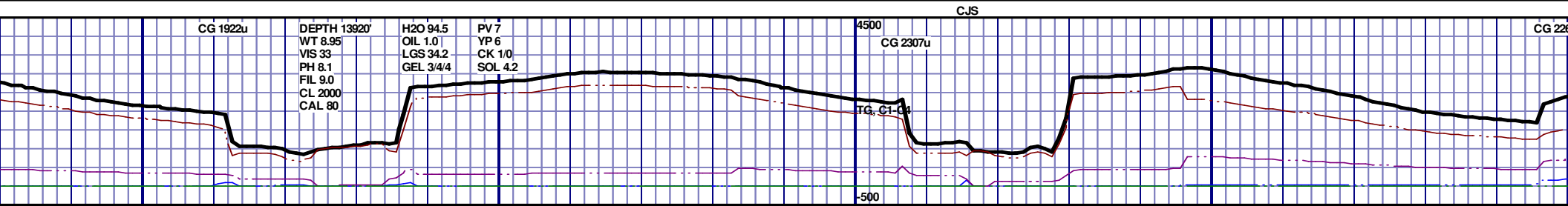
MD 12990 TVD
INC 92.22 AZ
VS 6577.82

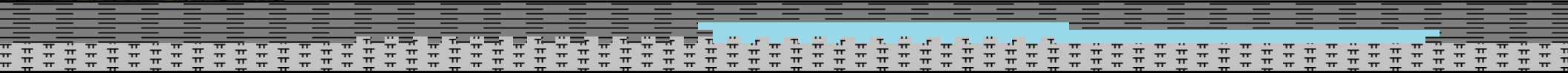
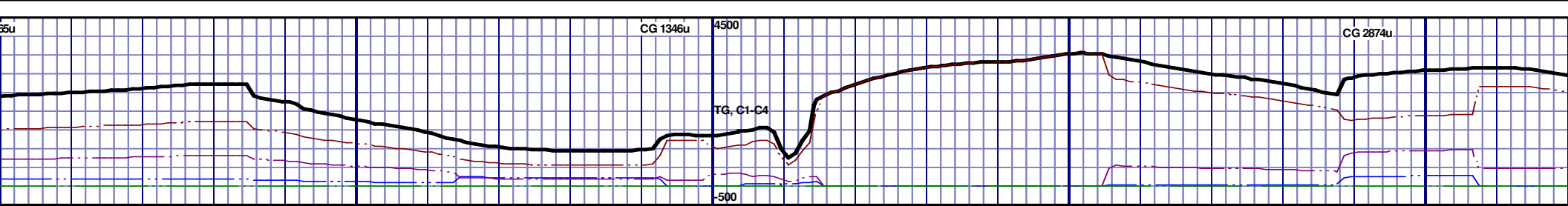


6830 TVD					6830 TVD				
									
13000' MD-13050' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, MOD GYSHBLK STN, 20% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					13050' MD-13100' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 20% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				
									
13100' MD-13150' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 15% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					13150' MD-13200' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 15% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				
									
13200' MD-13250' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 10% LTOR MIN FLOR, IMMED STRMG CUT					13200' MD-13250' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 10% LTOR MIN FLOR, IMMED STRMG CUT				



13700' MD-13750' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, MOD GYSHBLK STN, 10% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				13750' MD-13800' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, MOD GYSHBLK STN, 10% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				13800' MD-13850' MD: CHK: 55% V/LTGy - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				13850' MD-13900' MD: CHK: 55% V/LTGy TO SUBBLKY, FXLN TO CHALKY, IMBD CAL, FREE BENT, FREE SH, FREE MARL, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT			
13700' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, MOD GYSHBLK STN, 10% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				13750' MD-13800' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, MOD GYSHBLK STN, 10% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				13800' MD-13850' MD: CHK: 55% V/LTGy - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				13850' MD-13900' MD: CHK: 55% V/LTGy TO SUBBLKY, FXLN TO CHALKY, IMBD CAL, FREE BENT, FREE SH, FREE MARL, 5% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT			

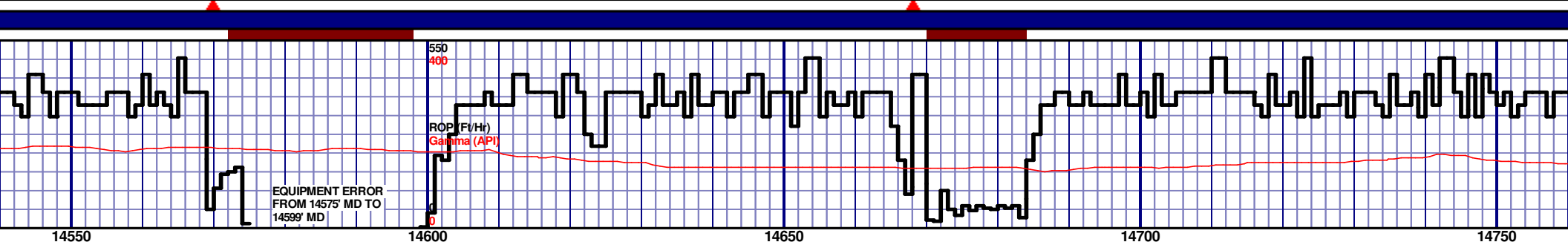
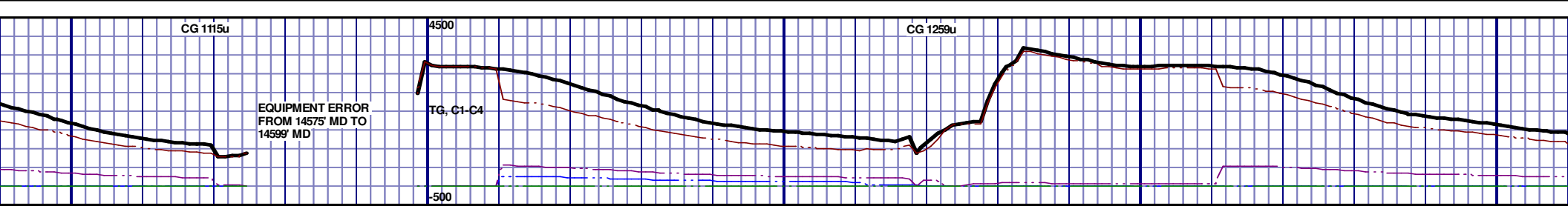




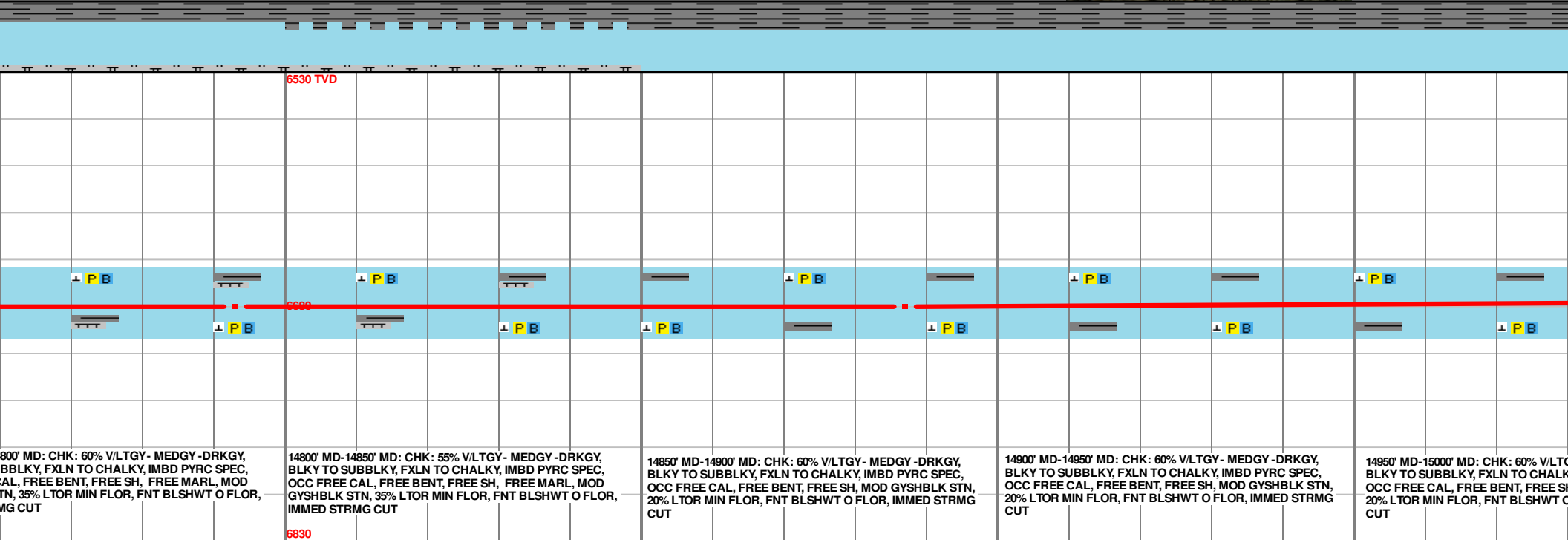
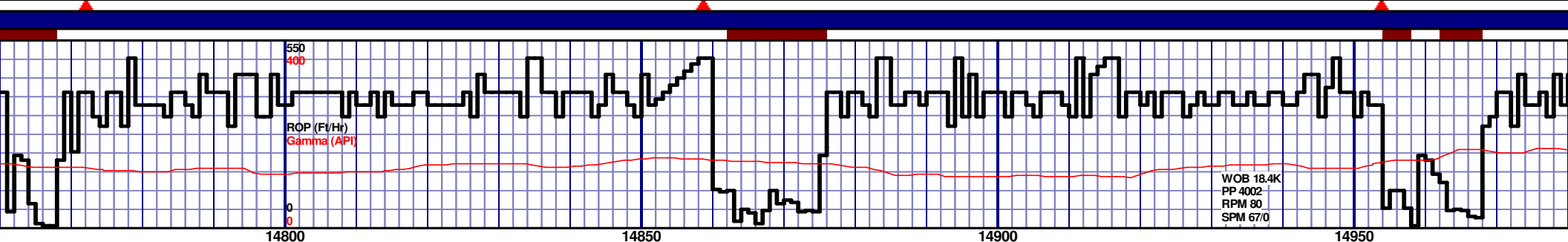
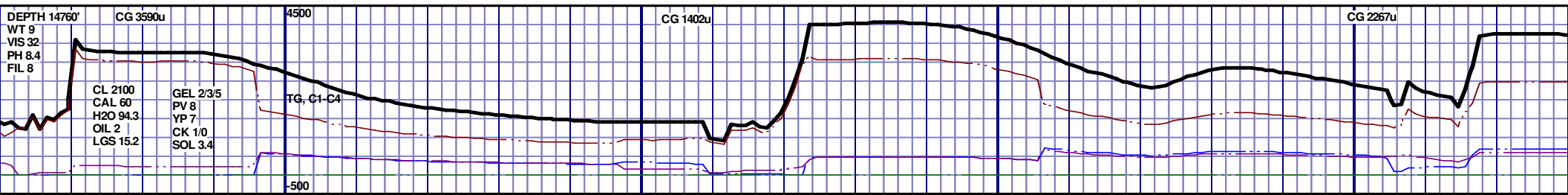
NIOBRARA B MARL 14100' MD 6680' TVD										6530 TVD									
14100' MD-14150' MD: MRL: 40% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, MOD GYSHBLK STN, 40% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										6630									
14150' MD-14200' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, MOD GYSHBLK STN, 40% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										6730									
14200' MD-14250' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, FREE CHK, MOD GYSHBLK STN, 40% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										6830									
14250' MD-14300' MD: MRL: 40% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, FREE CHK, MOD GYSHBLK STN, 40% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										6930									
14300' MD-14350' MD: MRL: 40% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, FREE CHK, MOD GYSHBLK STN, 40% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT										7030									

MD 14129 TVD 6679.27
INC 90.83 AZ 92.59
VS 7715.03

MD 14224 TVD 6679.63
INC 88.74 AZ 89.76
VS 7809.76



6530 TVD									
NIORRARA C CHALK 14632' MD 6680' TVD									
14550' MD-14600' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, MOD GYSHBLK STN, 30% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
14600' MD-14650' MD: MRL: 45% MEDDRKGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD CAL, FREE PYR, FREE BENT, MOD GYSHBLK STN, 30% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
14650' MD-14700' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 30% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
14700' MD-14750' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									
14750' MD-14800' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT									



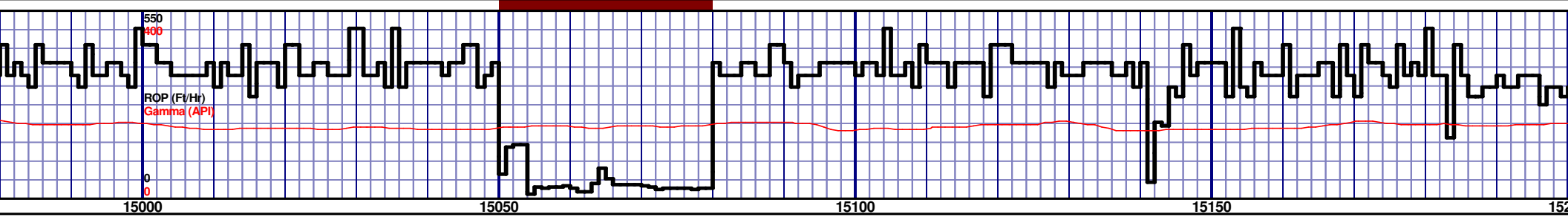
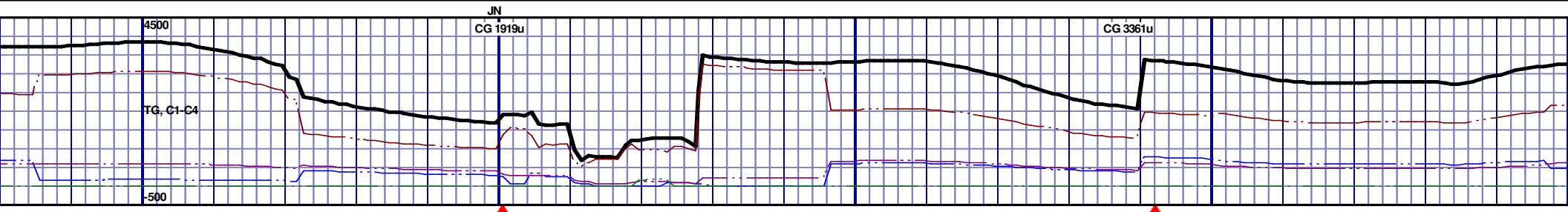
14800' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

14800' MD-14850' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

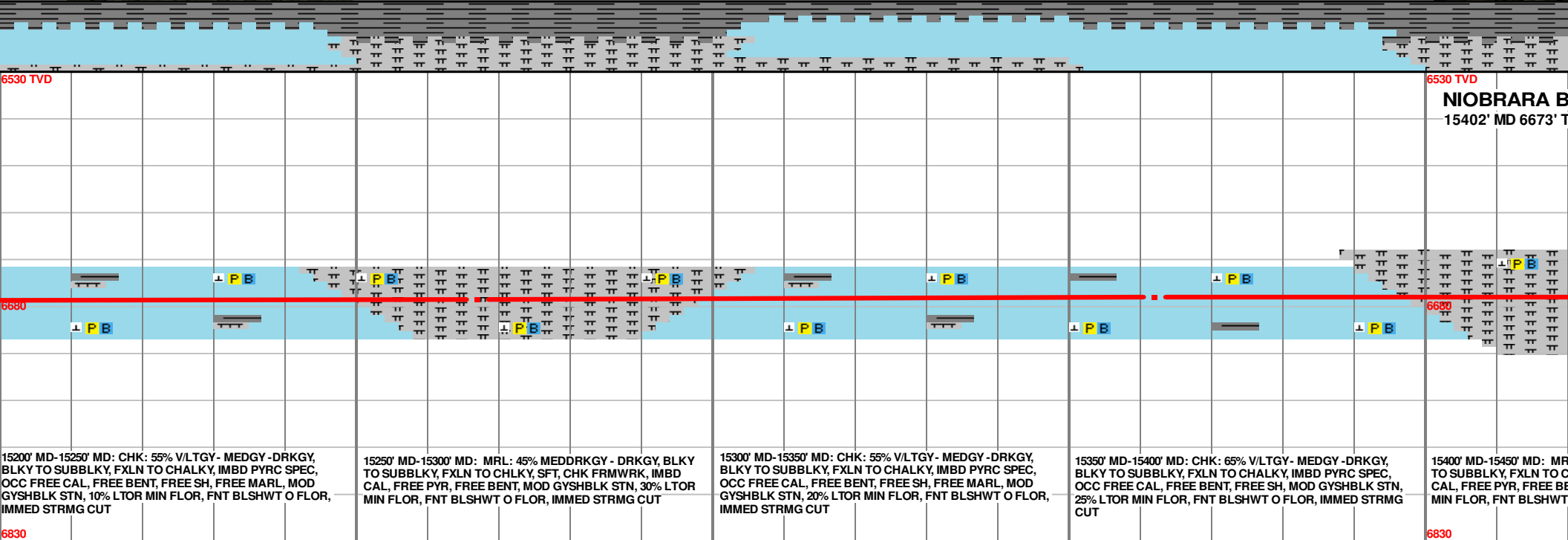
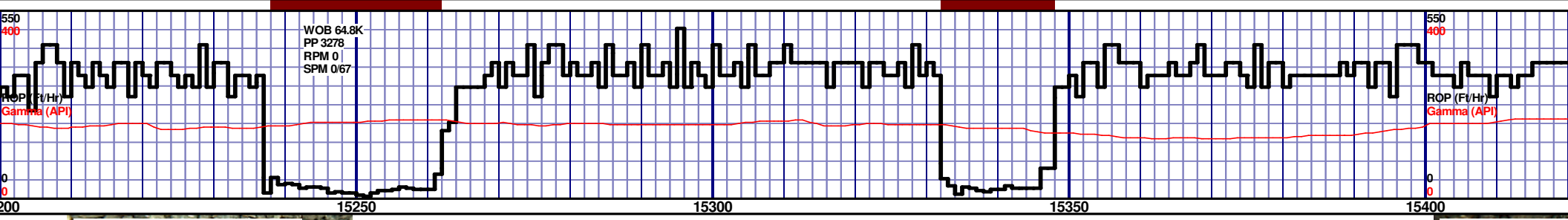
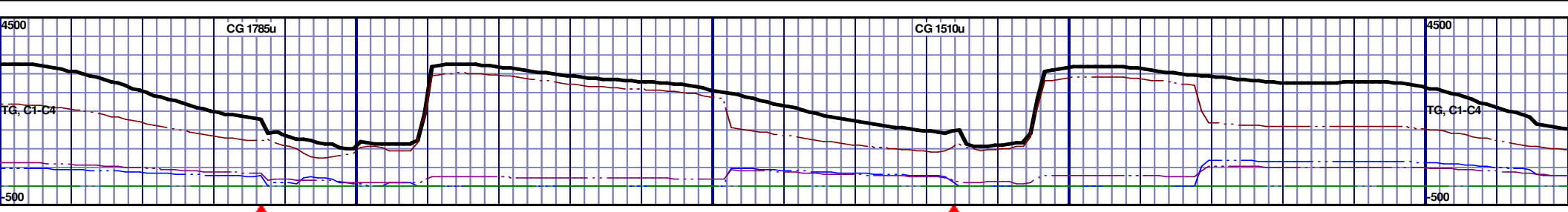
14850' MD-14900' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, MOD GYSHBLK STN, 20% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

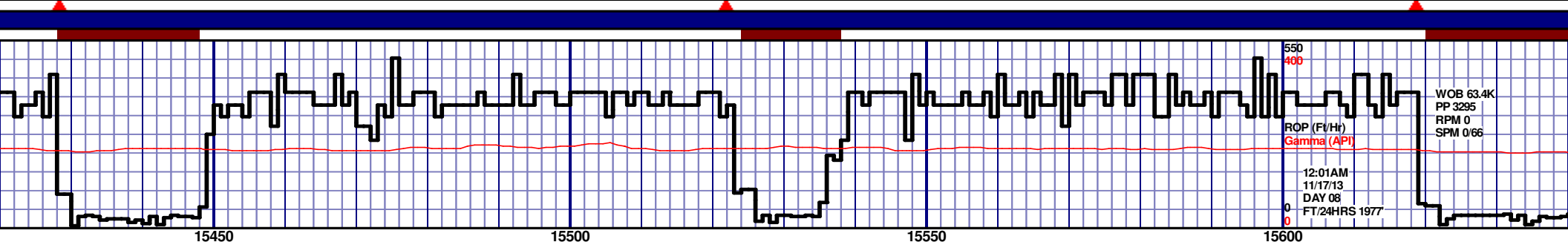
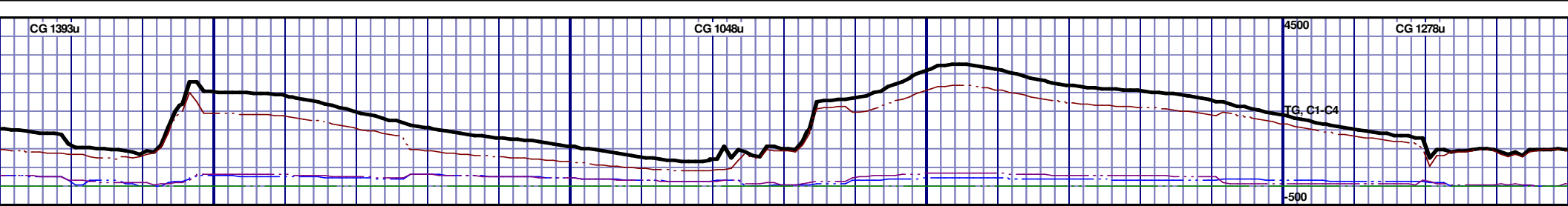
14900' MD-14950' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, MOD GYSHBLK STN, 20% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

14950' MD-15000' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, MOD GYSHBLK STN, 20% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT

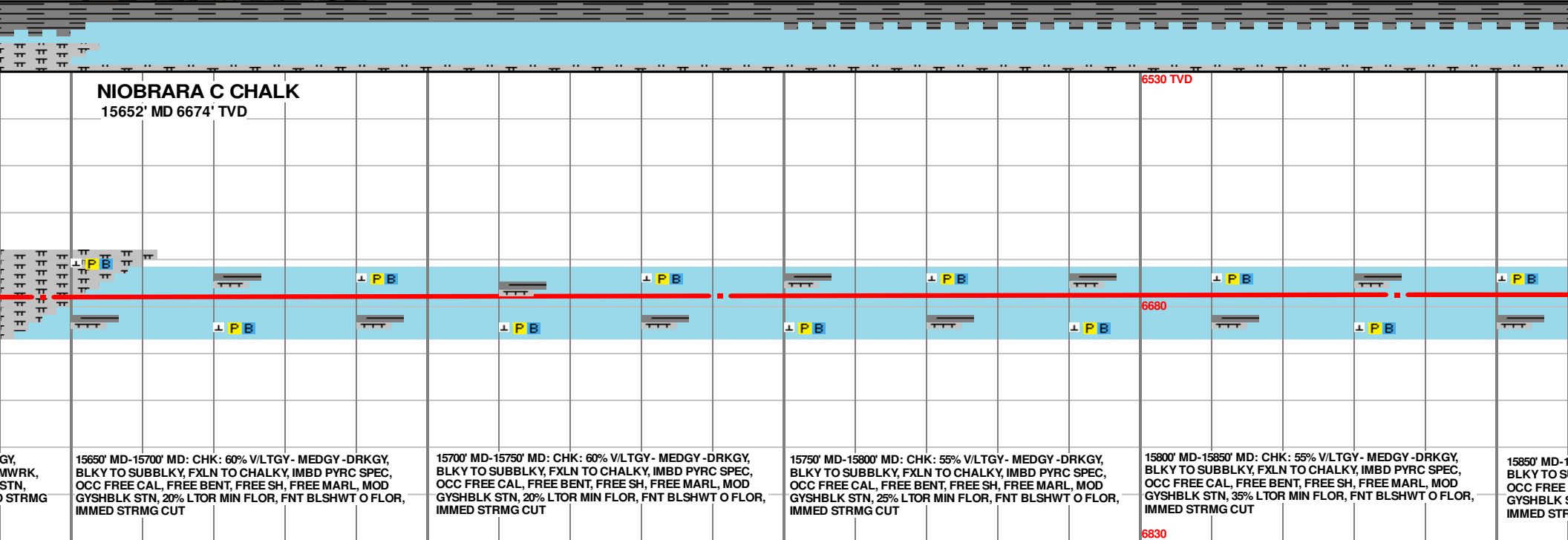
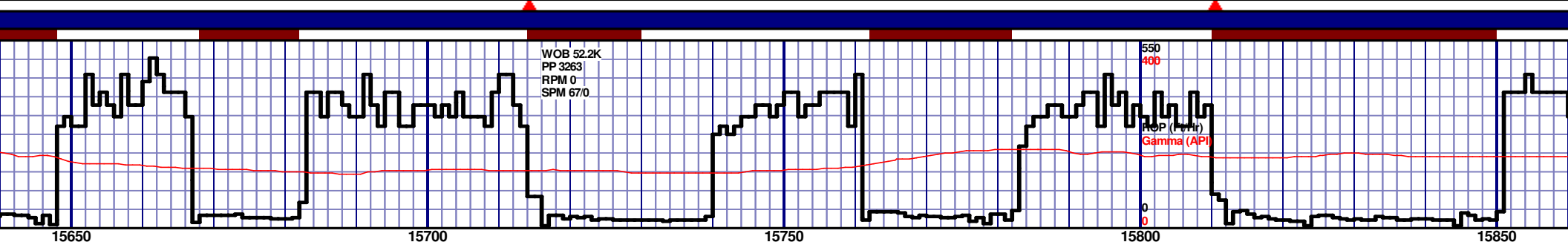
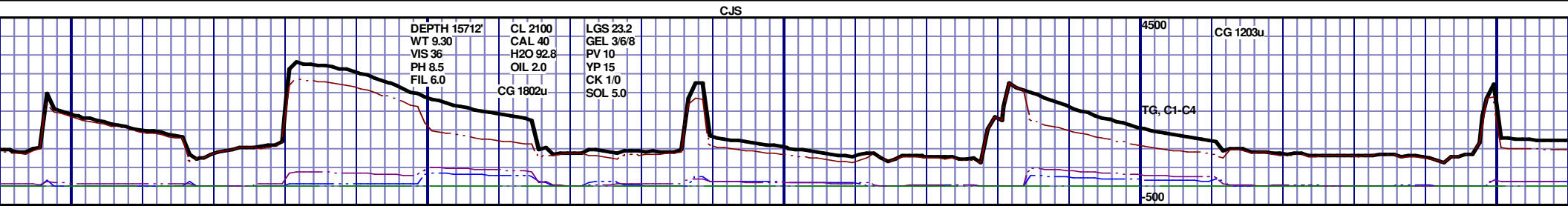


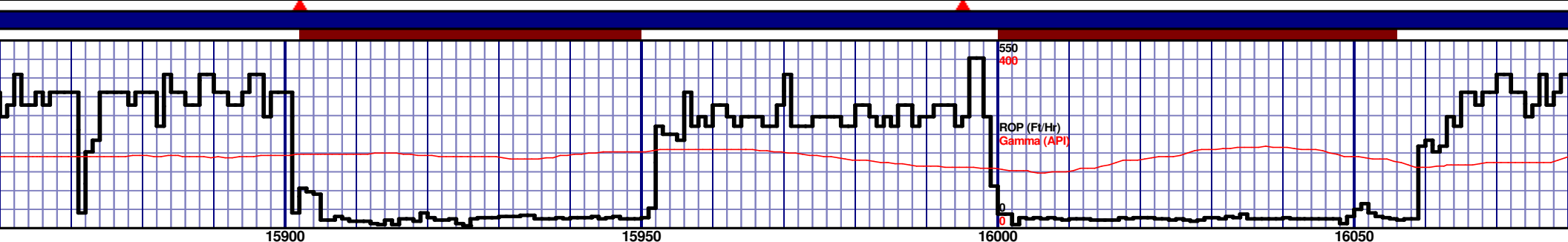
6530 TVD									
15000' MD-15050' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, MOD GYSHBLK STN, 30% L TOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					15050' MD-15100' MD: CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, MOD GYSHBLK STN, 20% L TOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				
15100' MD-15150' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 30% L TOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT					15150' MD-15200' MD: CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 20% L TOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				





MARL VD										6530 TVD									

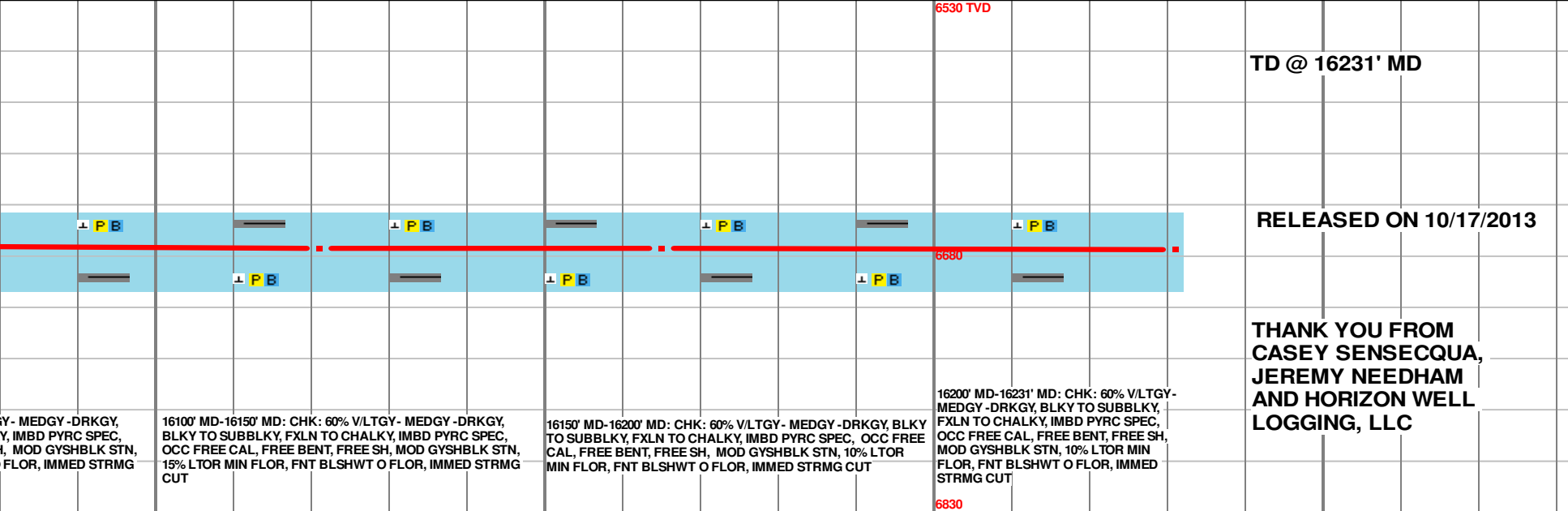
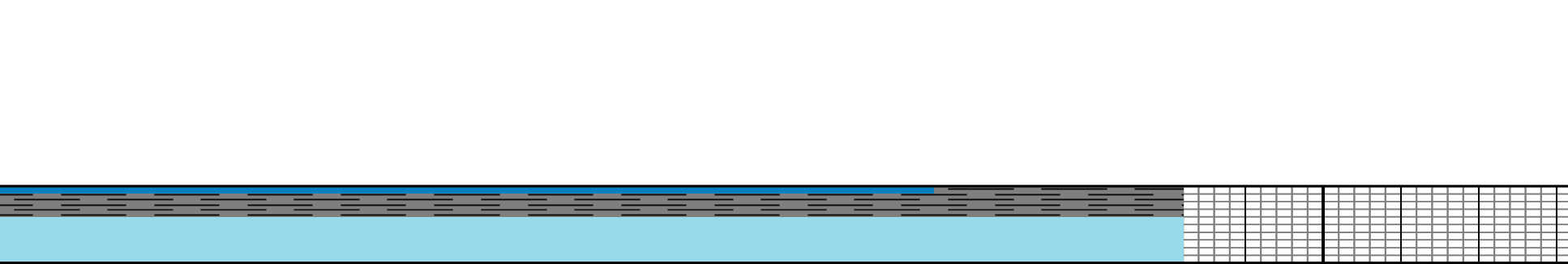
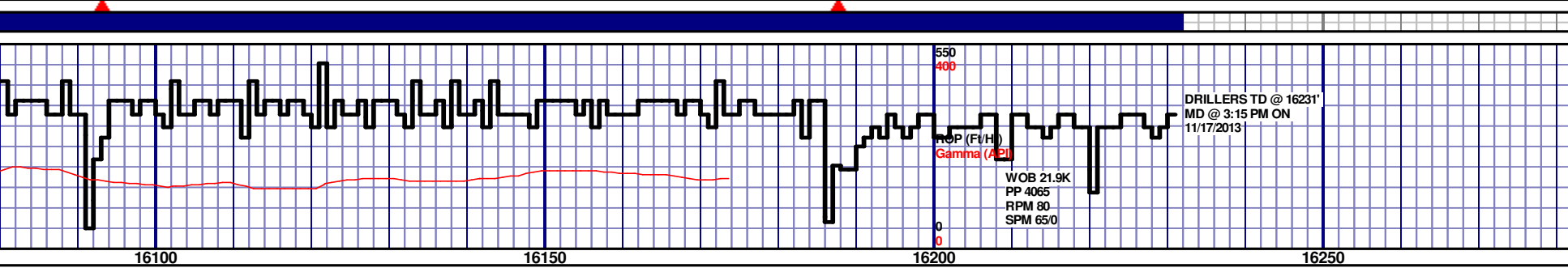
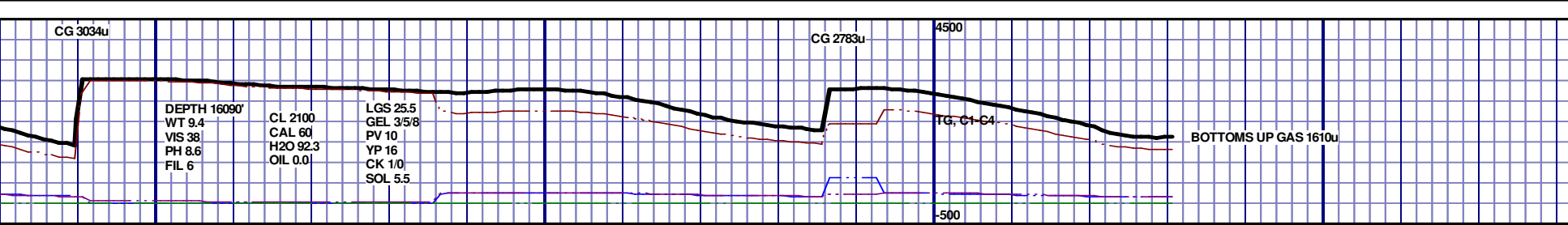




15900' MD-15950' MD: CHK: 55% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				15950' MD-16000' MD: CHK: 55% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				16000' MD-16050' MD: CHK: 50% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				16050' MD-16100' MD: CHK: 60% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT			
15900' MD: CHK: 55% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				15950' MD: CHK: 55% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				16000' MD: CHK: 50% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT				16050' MD: CHK: 60% V/LTGY- MEDGY -DRKGY, BLKY TO SUBBLKY, FXLN TO CHALKY, IMBD PYRC SPEC, OCC FREE CAL, FREE BENT, FREE SH, FREE MARL, MOD GYSHBLK STN, 35% LTOR MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT			

MD 15931 TVD 6672.34
INC 89.57 AZ 91.67
VS 9510.23

MD 16026 TVD 6673.55
INC 88.98 AZ 88.17
VS 9605.08



MD 16121 TVD 6675.24
INC 88.98 AZ 85.86
VS 9700.06

MD 16165 TVD 6675.85
INC 89.44 AZ 85.57
VS 9744.05

PTB MD 16231 TVD 6676.49
INC 89.44 AZ 85.57
VS 9610.02

RELEASED ON 10/17/2013

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CASEY SENSECQUA,
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AND HORIZON WELL
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