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Tulsa, Oklahoma 74136-6378

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WWW.HZMUD.COM/25

Customer Information

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

Geologist: Holly Duncan
Noble Energy Inc.

Mud Logging Details

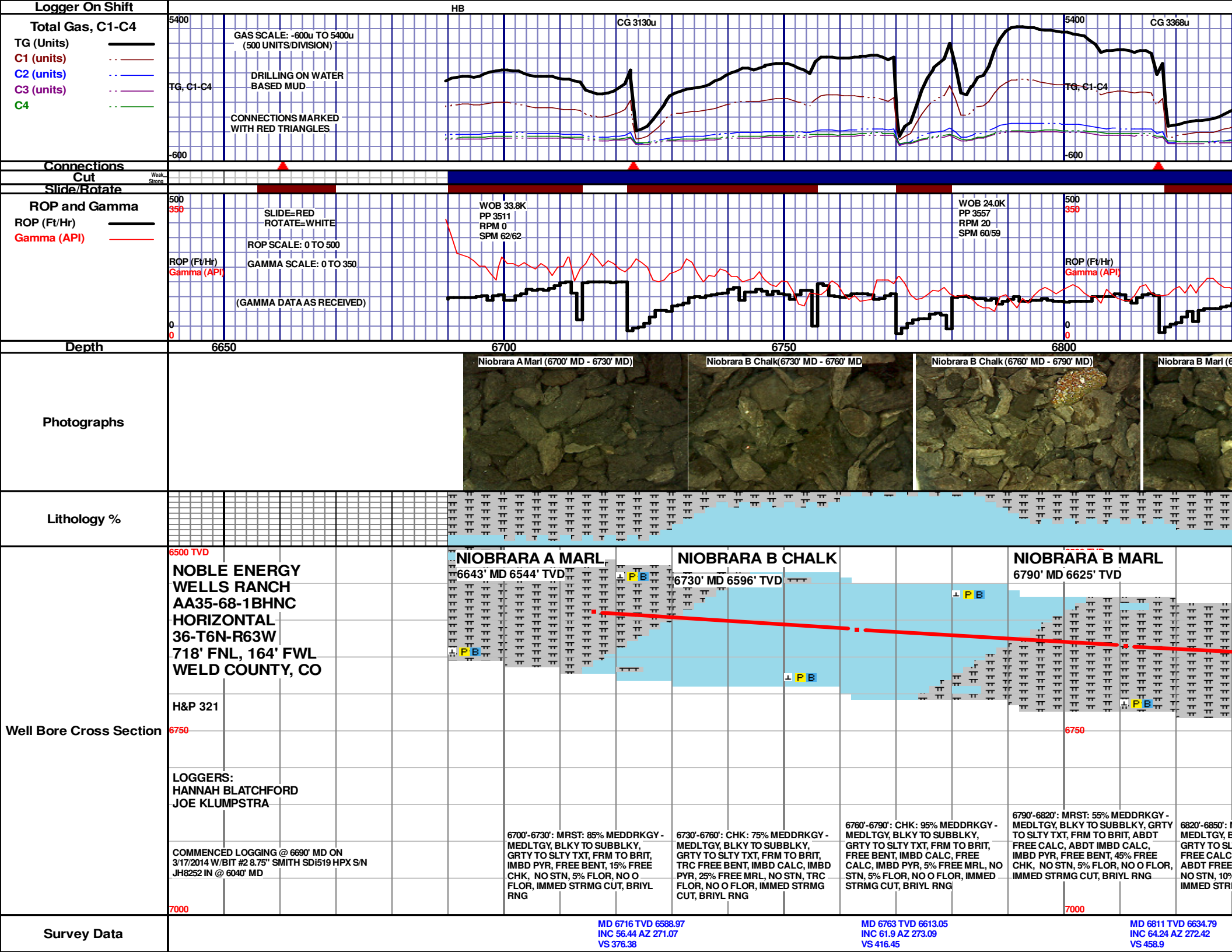
Logger: Hannah Blatchford &
Joe Klumpstra
Log Interval: 6690' MD to 11307' MD
Start Date: March 17, 2014
Release Date: March 20, 2014

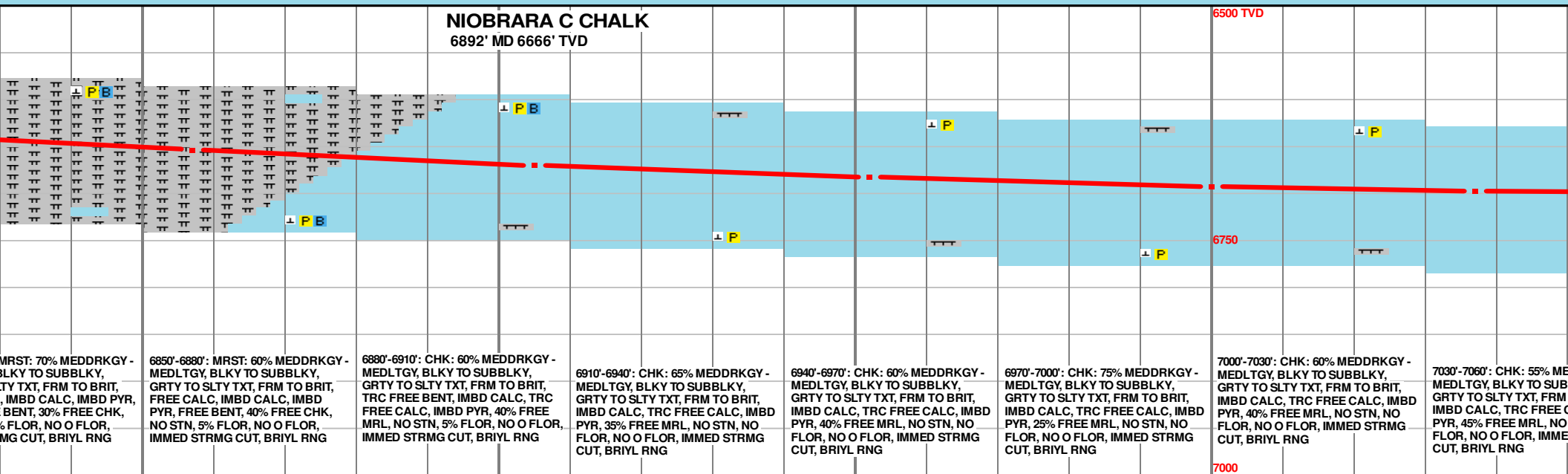
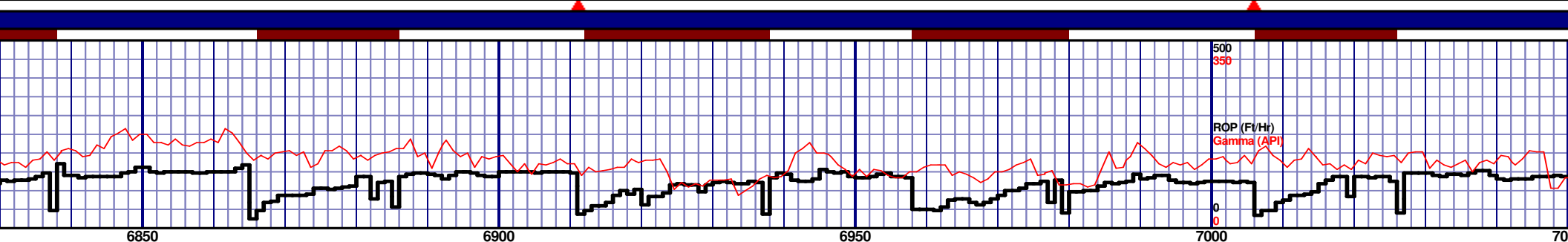
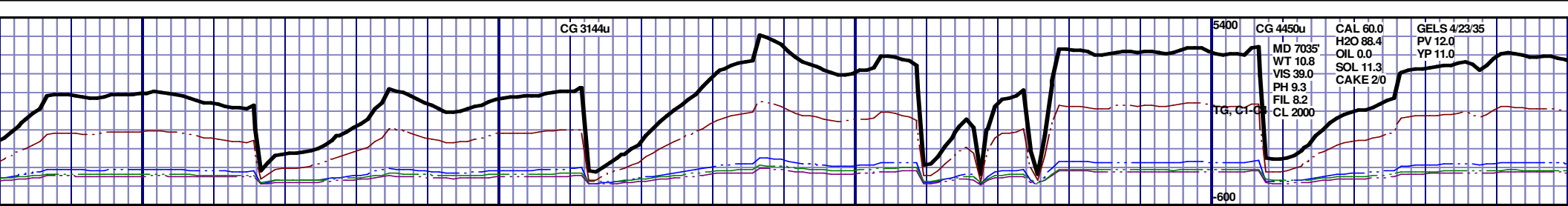
Well Information

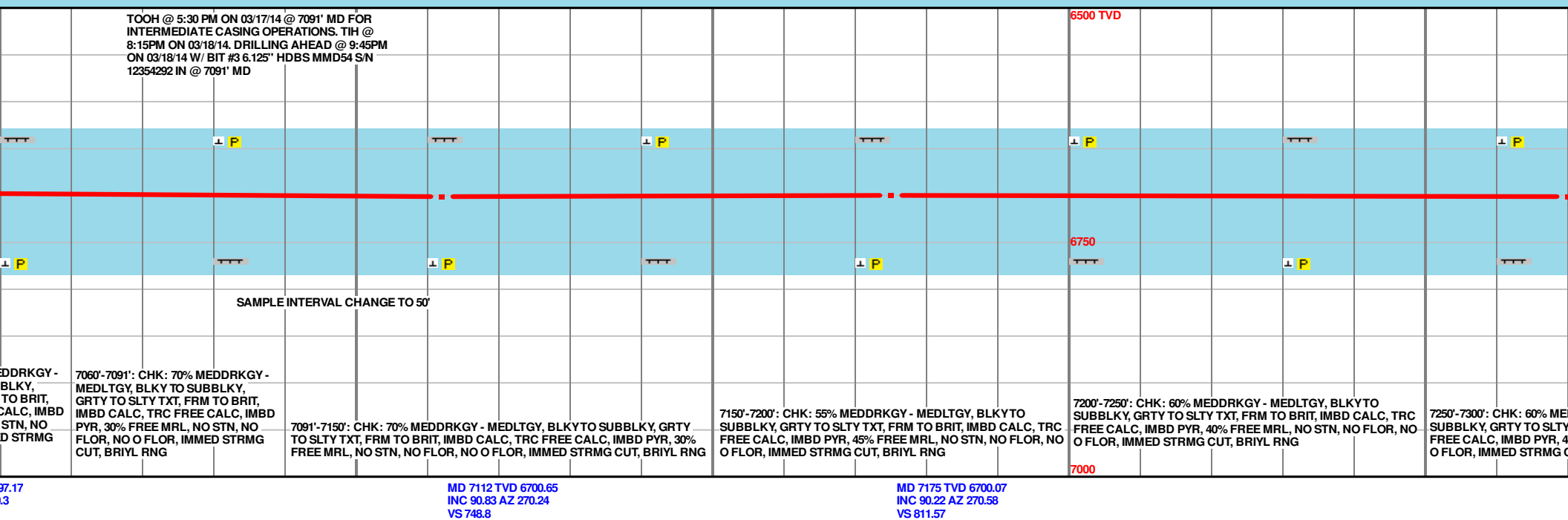
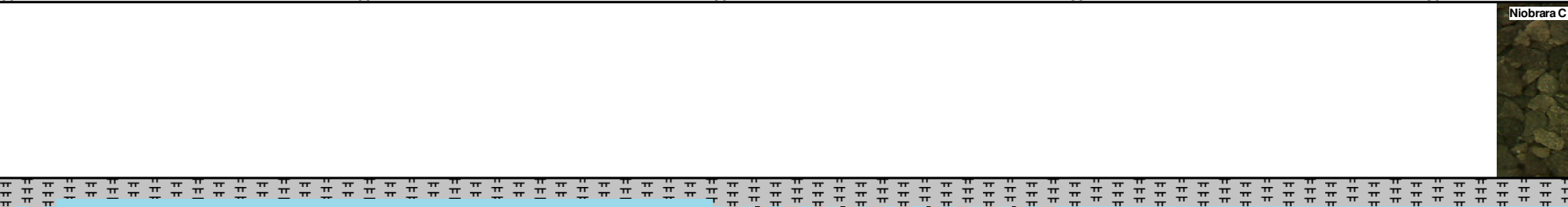
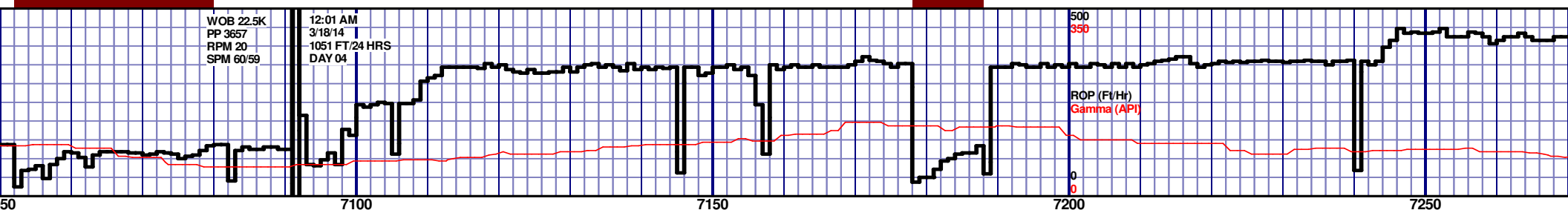
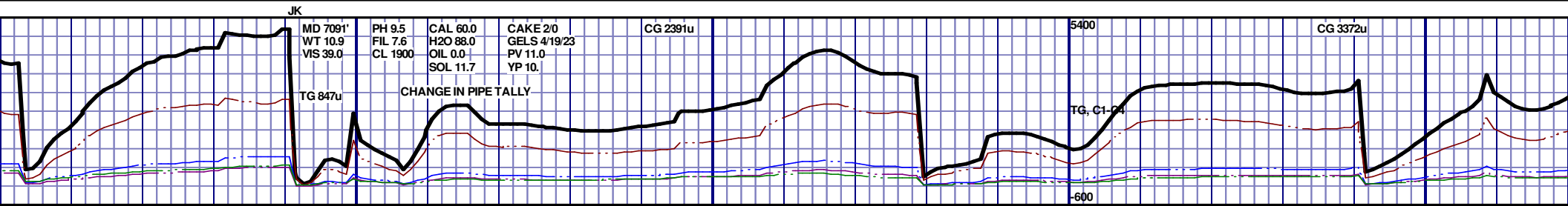
Well Name: Wells Ranch
AA35-68-1BHNC Horizontal
Location: 36-T6N-R63W
718' FNL, 164' FWL

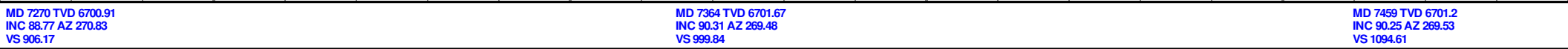
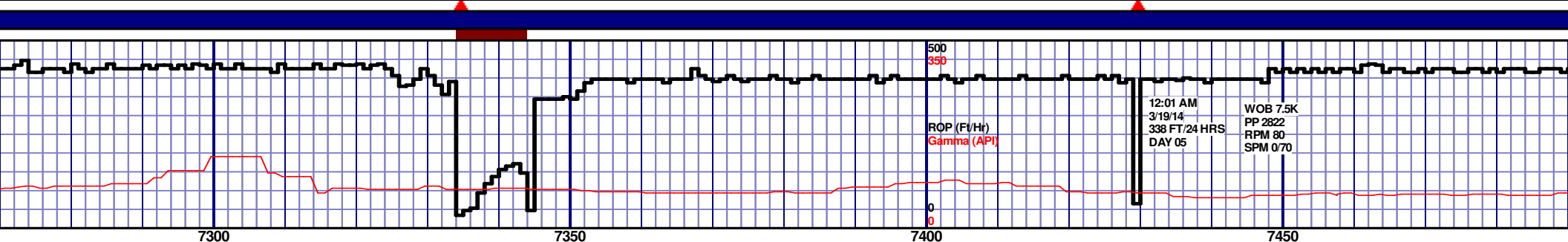
County: Weld
State: Colorado

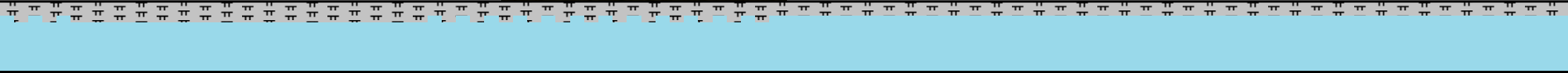
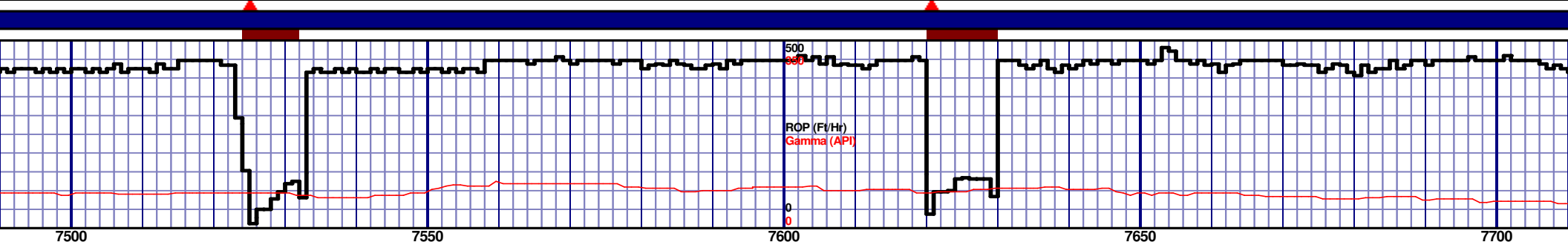
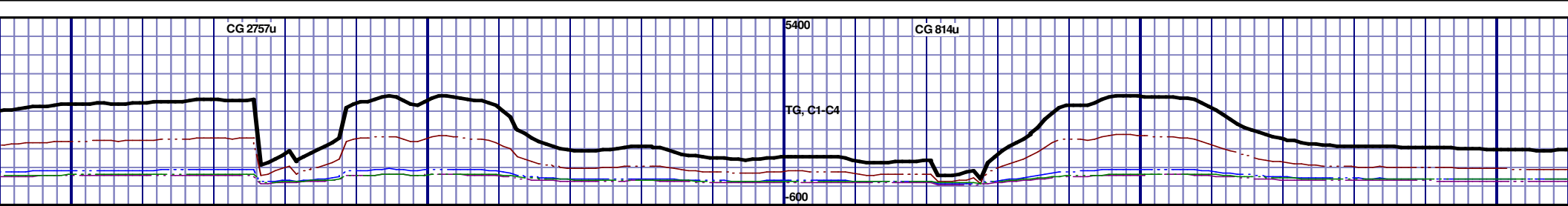
Drilling Rig: H&P 321
Total Depth: 11307' MD
TD Date: March 20, 2014
Formation: Niobrara C Chalk
KB Elevation: 4838'
GR Elevation: 4808'
API Number: 05-123-38665-0000







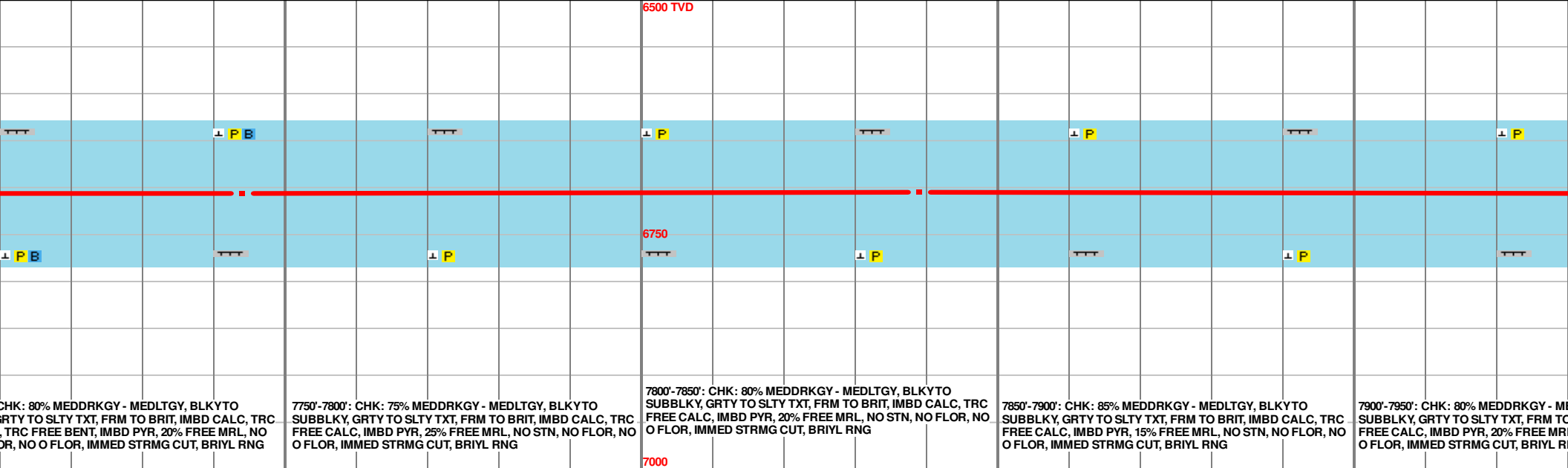
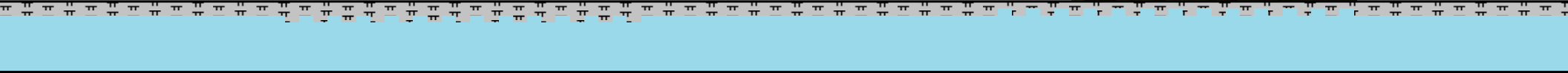
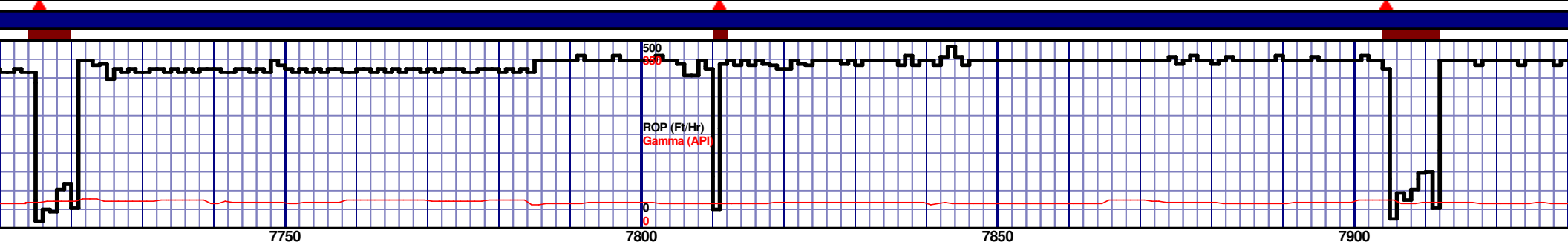
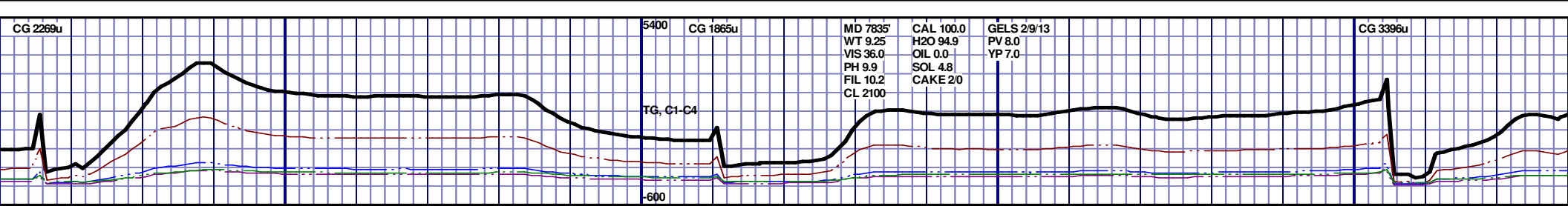




	<p>7500'-7550': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTE SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, IMBD PYR, 30% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>7550'-7600': CHK: 75% MEDDRKGY - MEDLTGY, BLKYTE SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, IMBD PYR, 25% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>7600'-7650': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTE SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, IMBD PYR, 20% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>7650'-7700': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTE SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE BENT, IMBD PYR, 20% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>7700'-7750': SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE BENT, IMBD PYR, 20% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>
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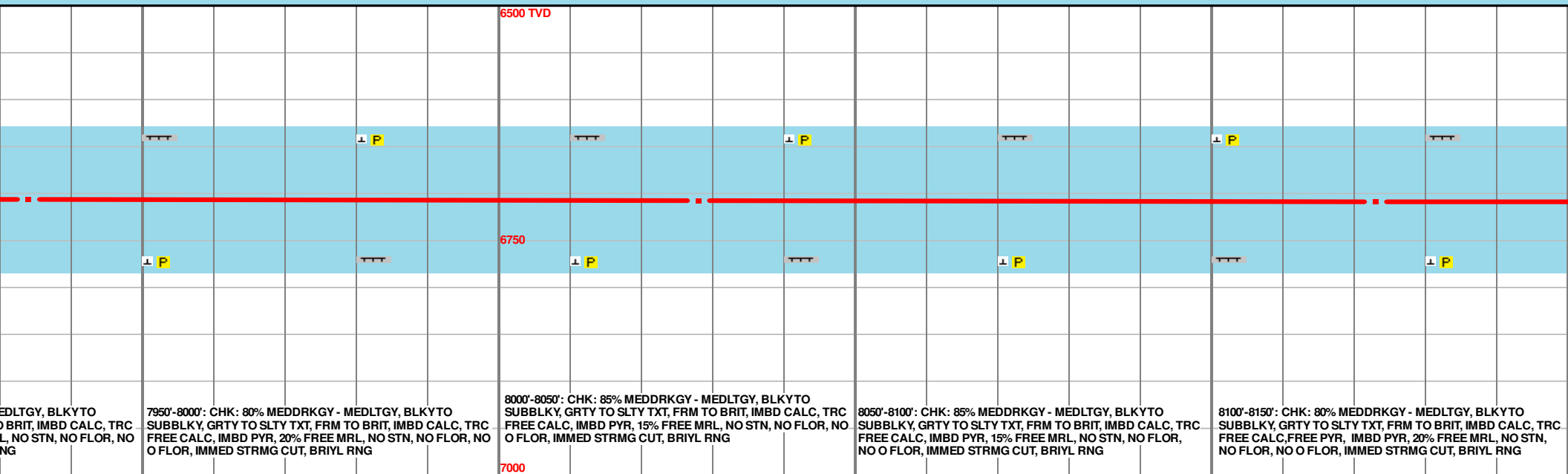
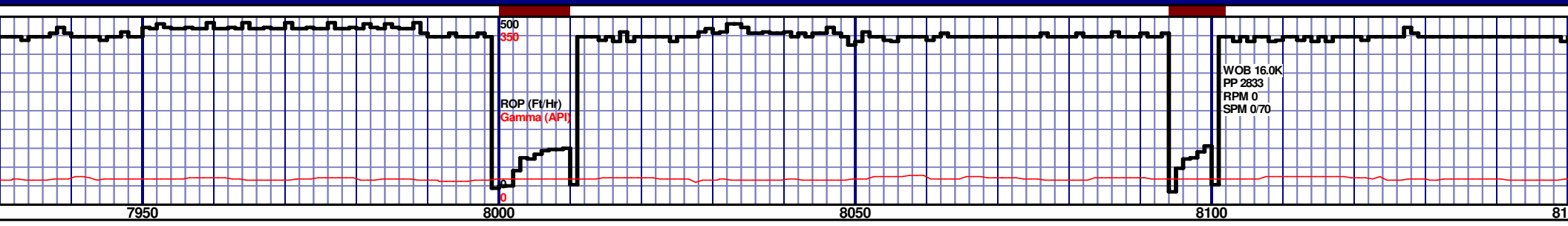
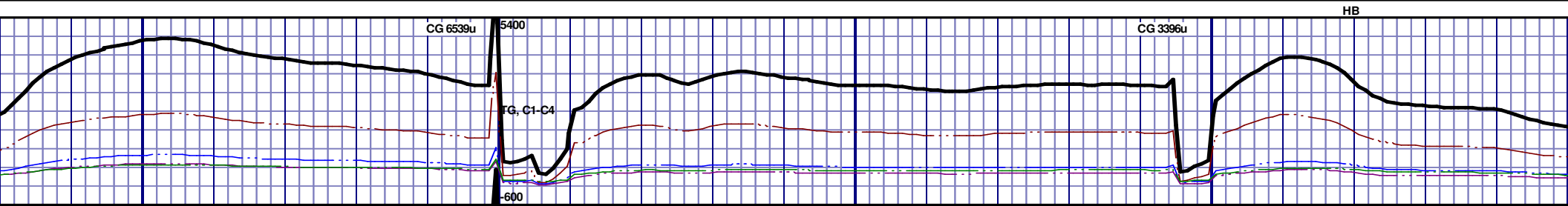
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INC 87.72 AZ 268.45
VS 1189.41

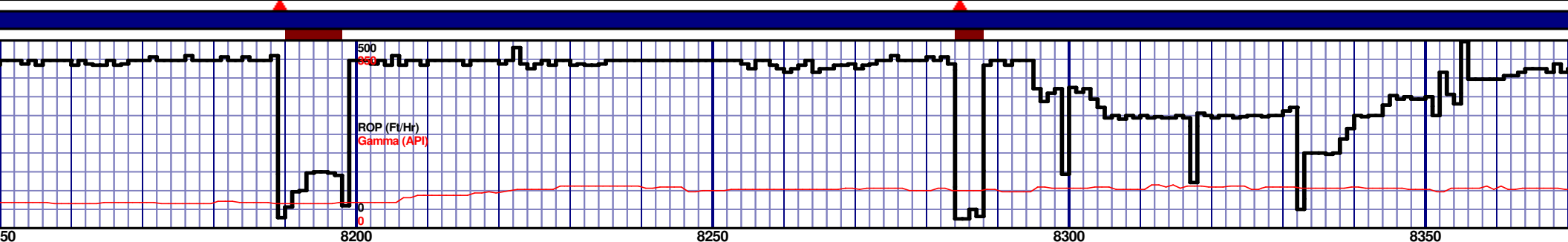
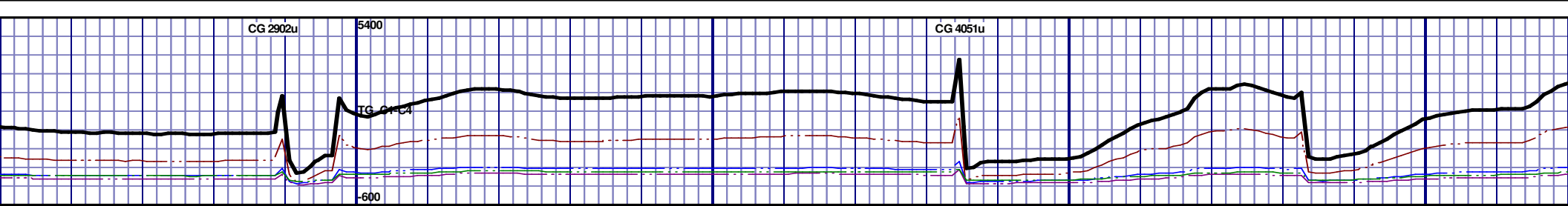
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INC 88.8 AZ 268.87
VS 1284.22



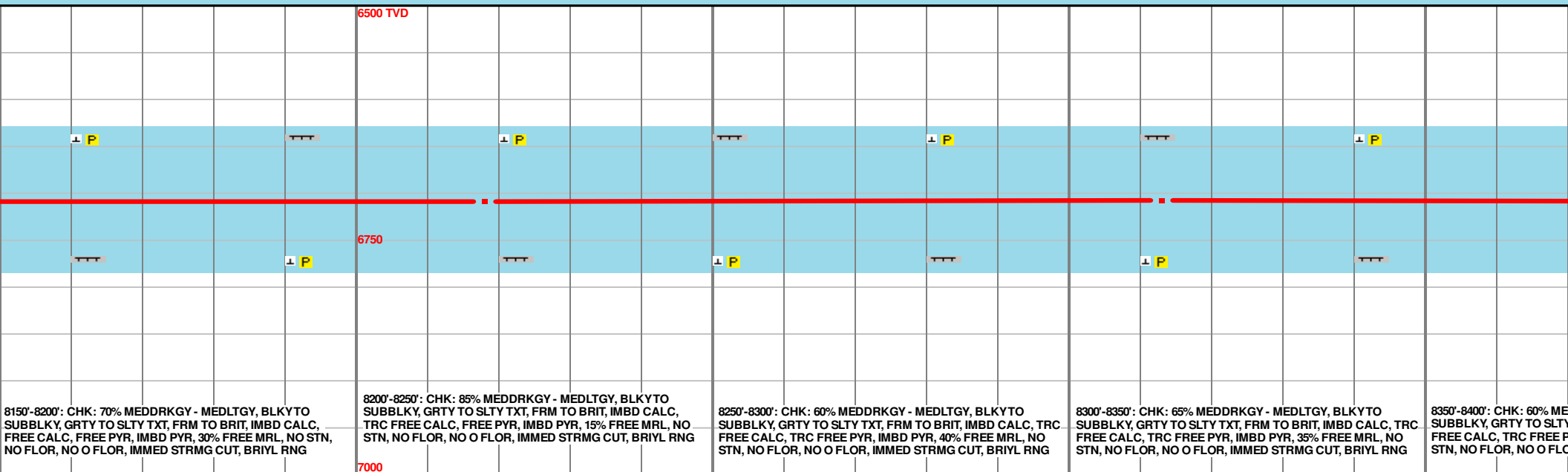
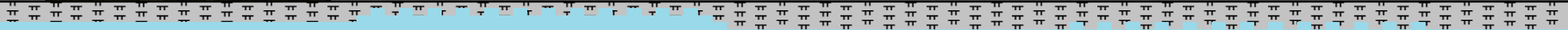
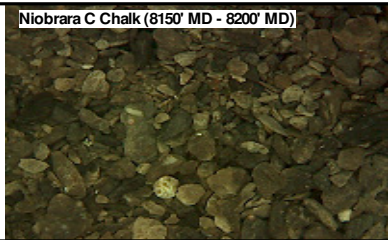
MD 7744 TVD 6706.1
INC 90.8 AZ 268.77
VS 1379.05

MD 7839 TVD 6705.51
INC 89.91 AZ 268.43
VS 1473.9



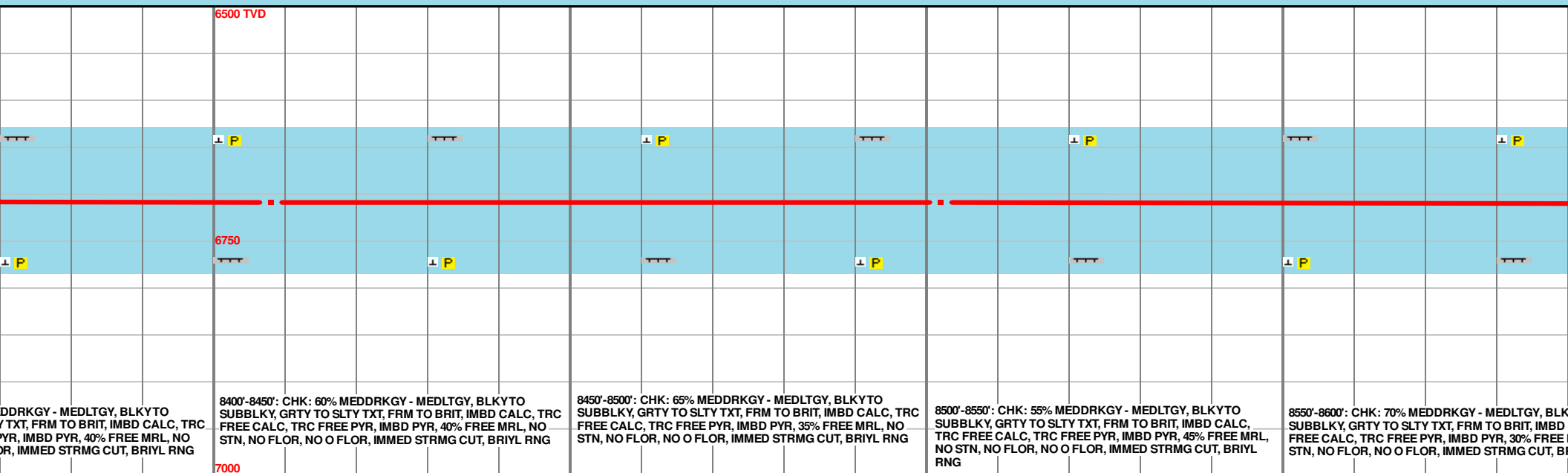
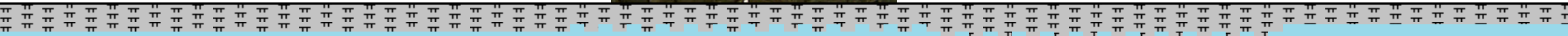
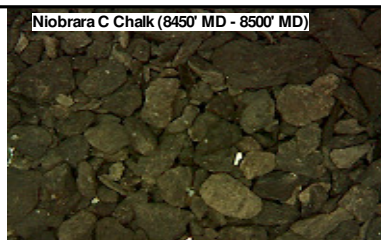
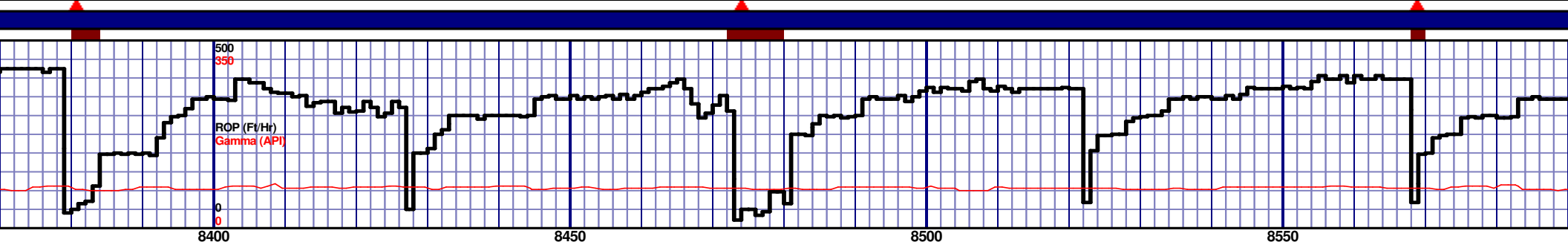
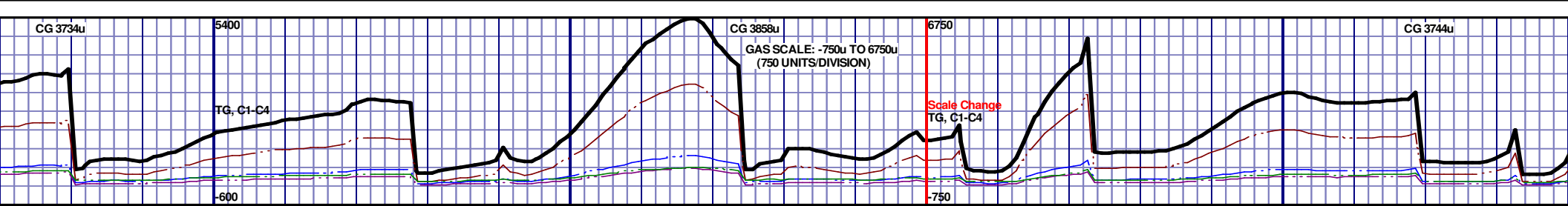


Niobrara C Chalk (8150' MD - 8200' MD)



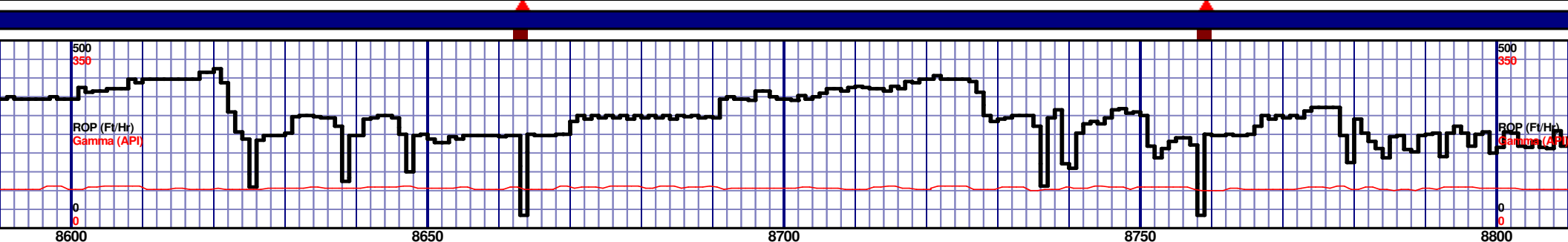
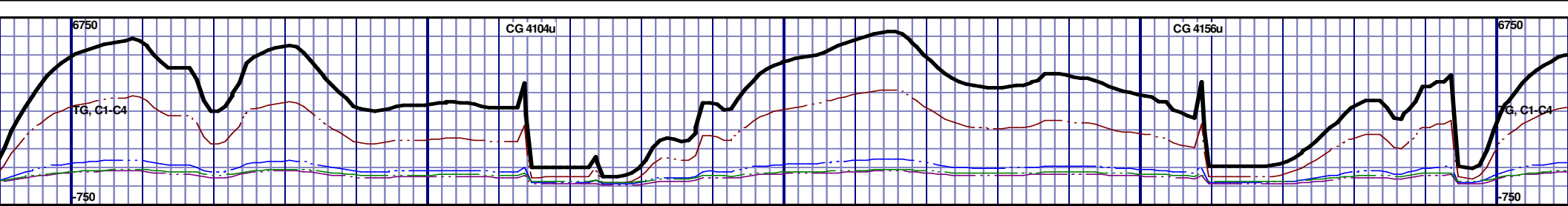
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INC 91.45 AZ 272.97
VS 1851.66

MD 8313 TVD 6708.05
INC 89.54 AZ 270.89
VS 1946.05



MD 8408 TVD 6708.66
INC 89.72 AZ 270.88
VS 2040.62

MD 8502 TVD 6709.19
INC 89.63 AZ 268.99
VS 2134.33

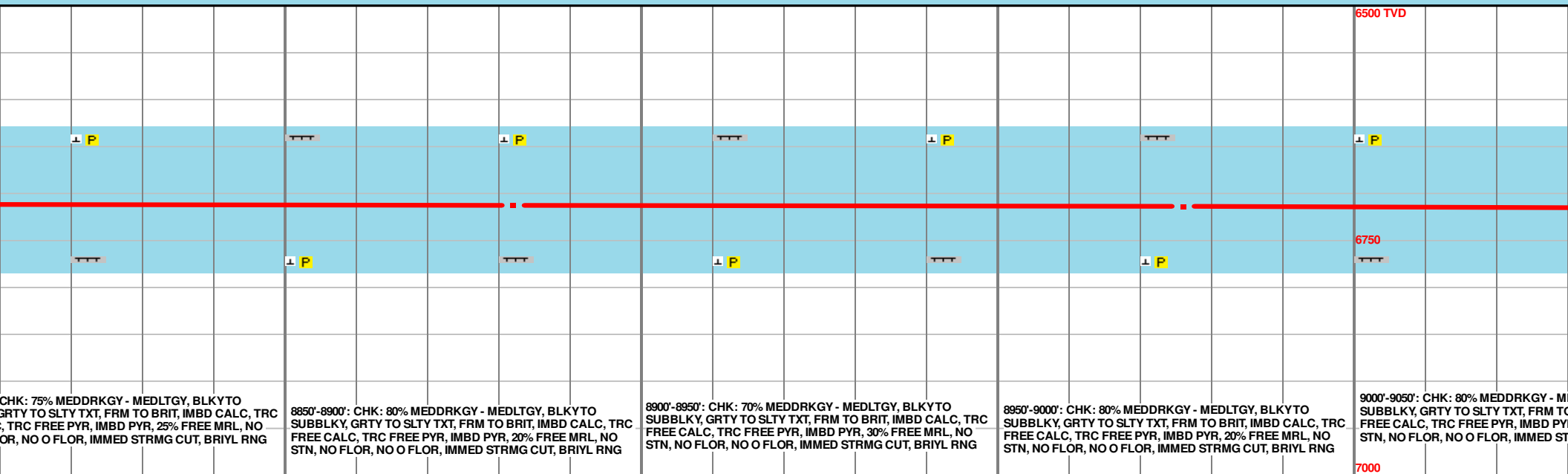
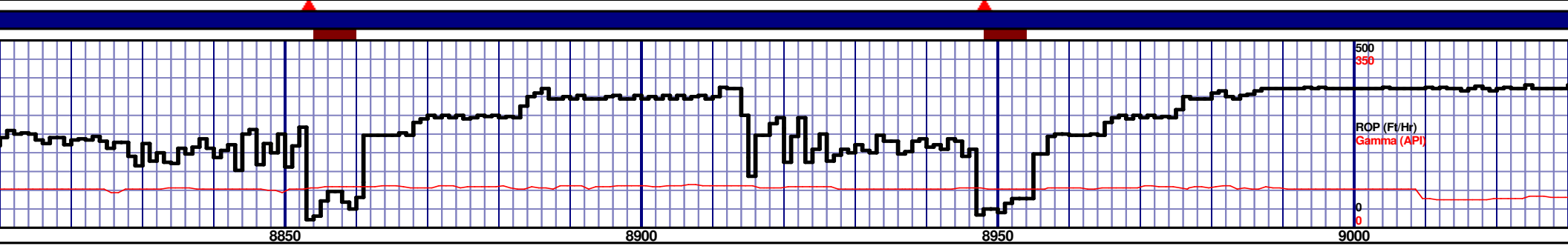
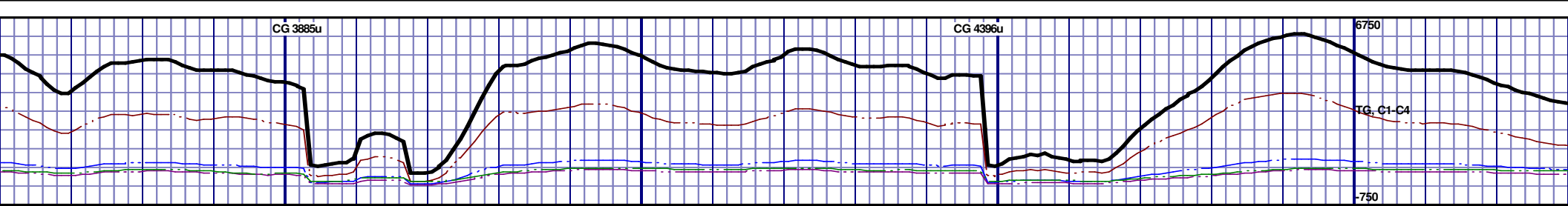


6500 TVD					6500 TVD				
8600'-8650': CHK: 65% MEDDRKGY - MEDLTGY, BLK YTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, IMBD PYR, 35% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG					8650'-8700': CHK: 60% MEDDRKGY - MEDLTGY, BLK YTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, IMBD PYR, 40% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				
7000					7000				

MD 8597 TVD 6709.91
INC 89.51 AZ 269.14
VS 2229.15

MD 8692 TVD 6710.64
INC 89.6 AZ 268.26
VS 2323.99

MD 8787 TVD 6711.49
INC 89.38 AZ 266.83
VS 2418.92



CHK: 75% MEDDRKGY - MEDLTGY, BLKYTO
 GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC
 FREE CALC, TRC FREE PYR, IMBD PYR, 25% FREE MRL, NO
 STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

8850'-8900': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTO
 SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC
 FREE CALC, TRC FREE PYR, IMBD PYR, 20% FREE MRL, NO
 STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

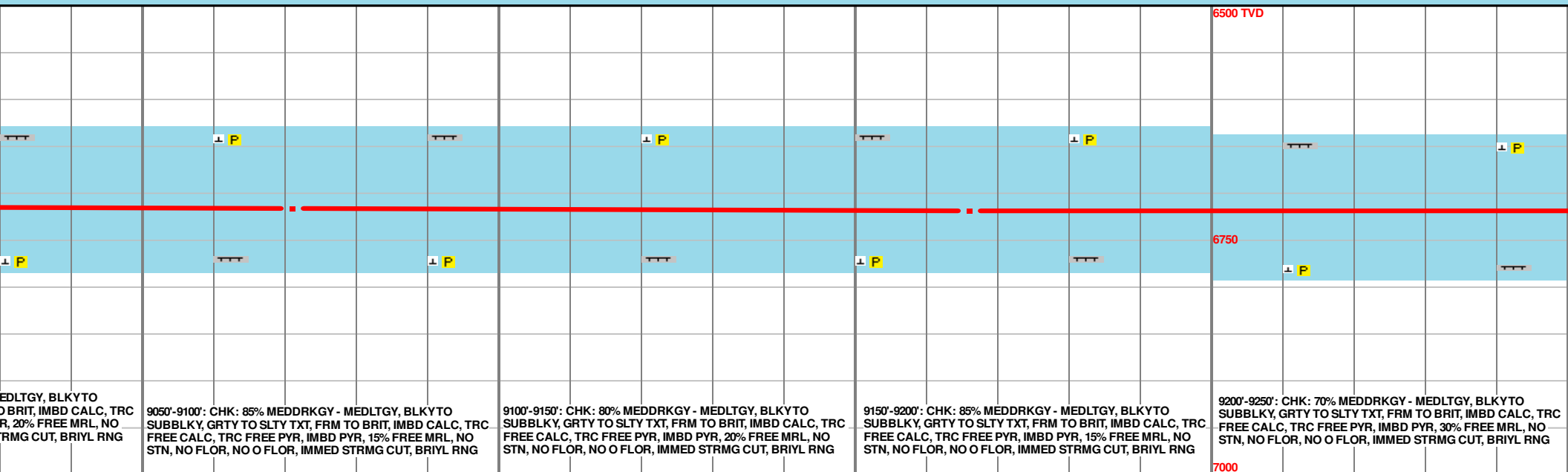
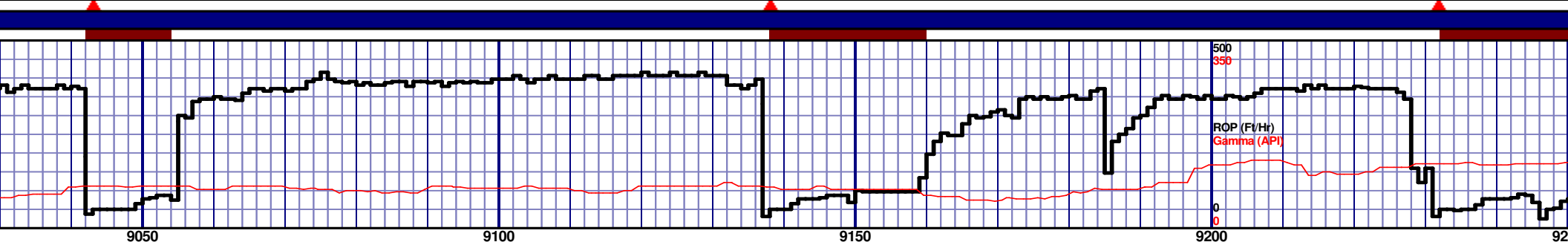
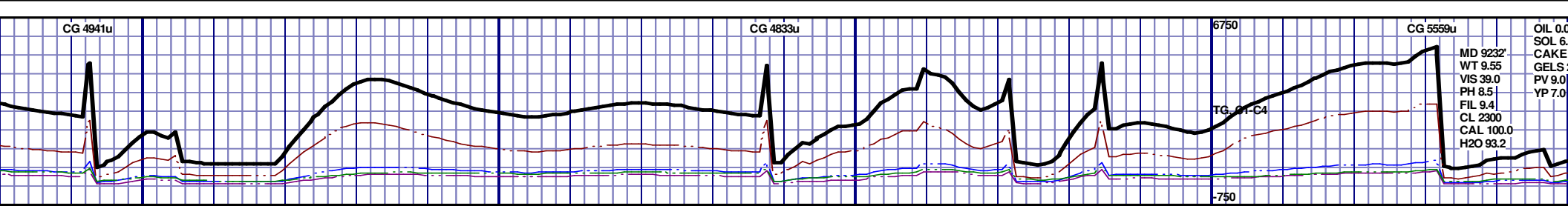
8900'-8950': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO
 SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC
 FREE CALC, TRC FREE PYR, IMBD PYR, 30% FREE MRL, NO
 STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

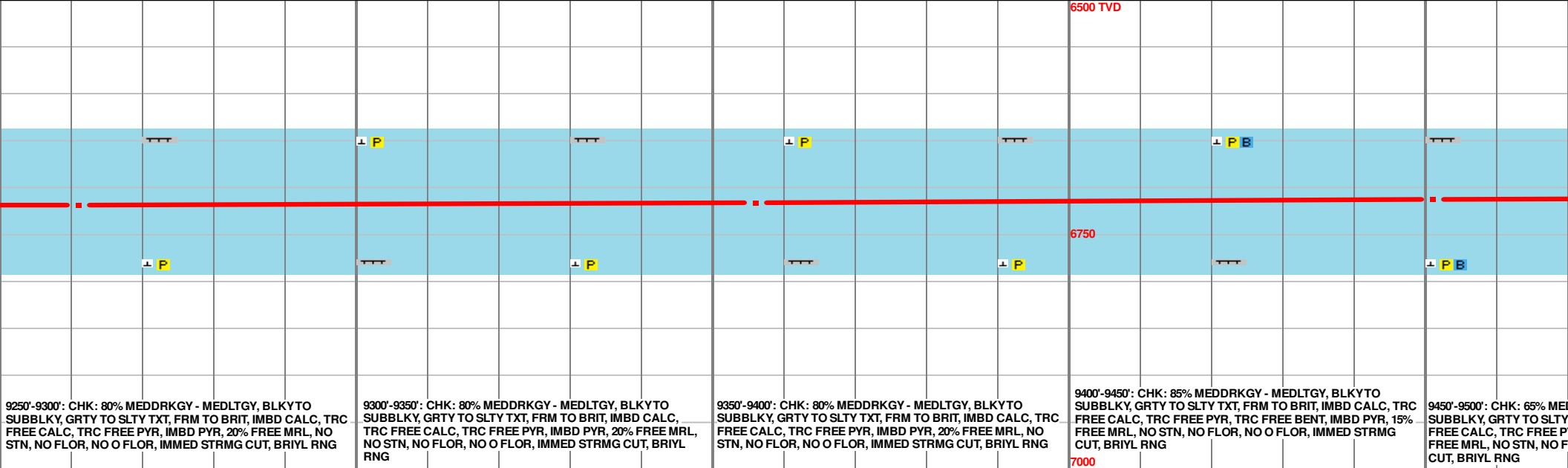
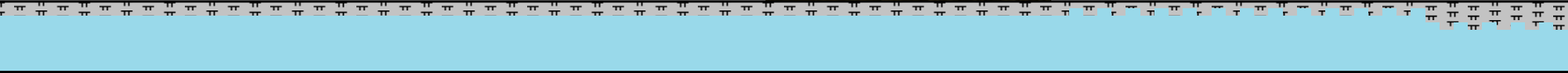
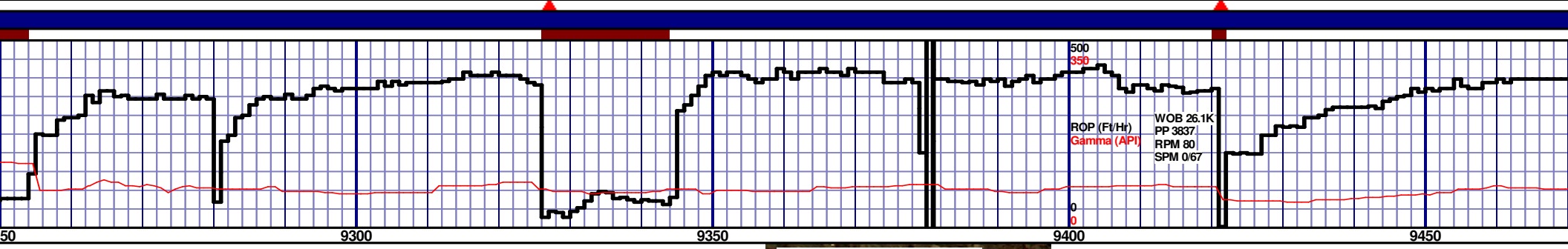
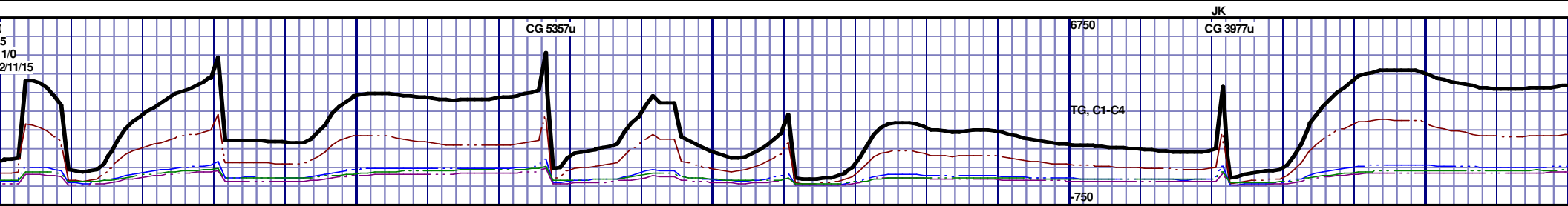
8950'-9000': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTO
 SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC
 FREE CALC, TRC FREE PYR, IMBD PYR, 20% FREE MRL, NO
 STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

9000'-9050': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTO
 SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC
 FREE CALC, TRC FREE PYR, IMBD PYR, 20% FREE MRL, NO
 STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

MD 8882 TVD 6711.9
 INC 90.12 AZ 267.83
 VS 2513.87

MD 8976 TVD 6713.22
 INC 88.28 AZ 267.23
 VS 2607.8

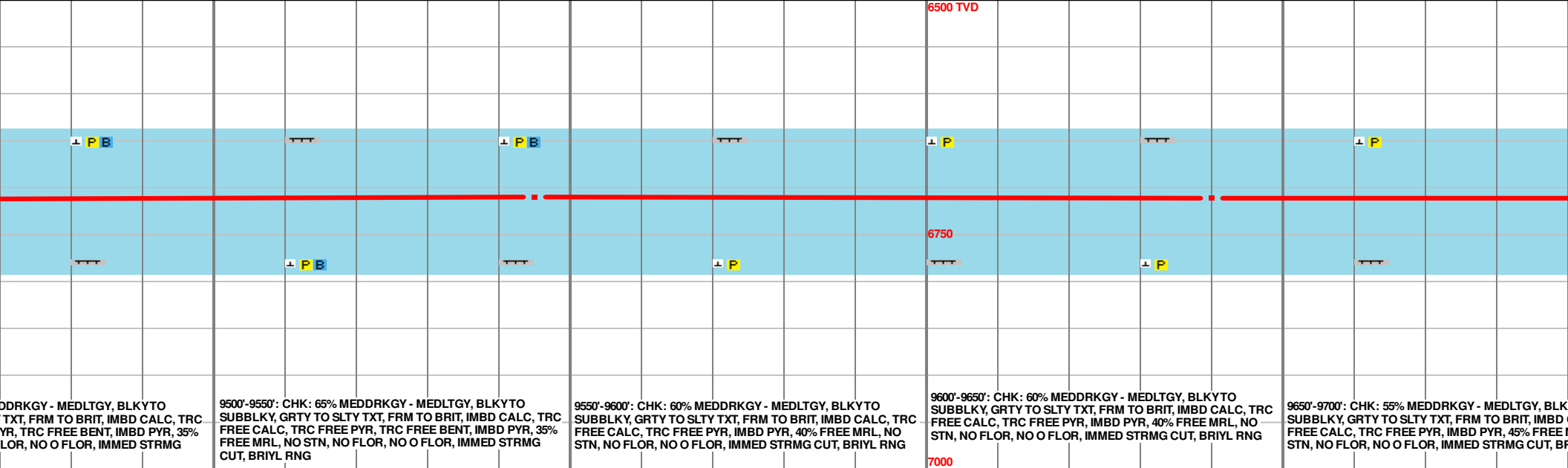
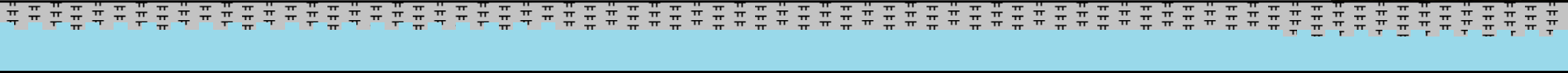
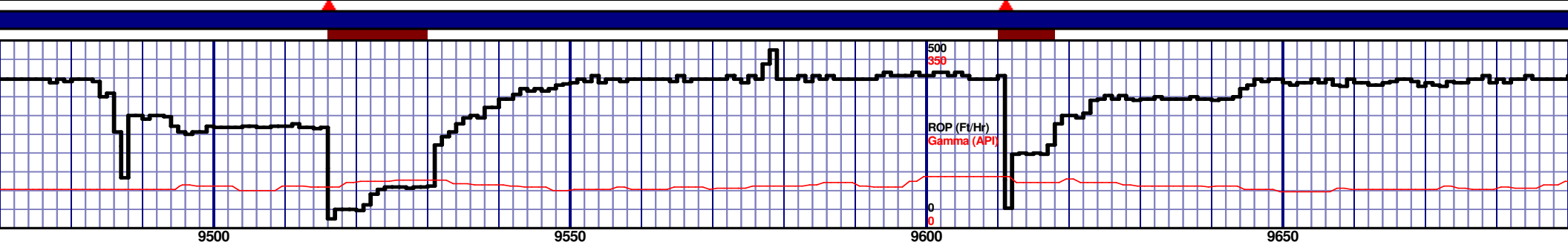
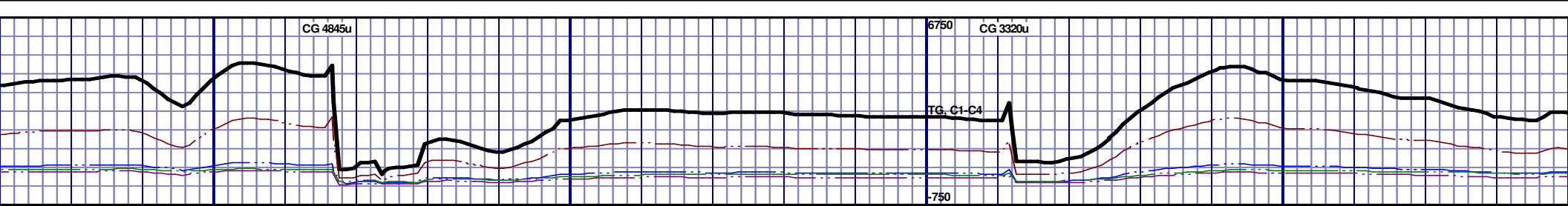


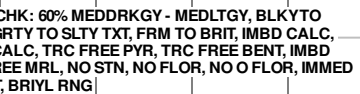
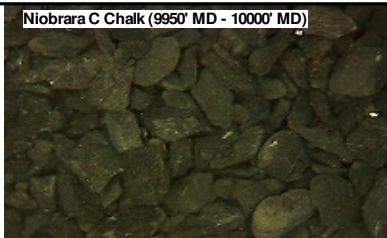


MD 9261 TVD 6718.59
INC 90.34 AZ 270.58
VS 2892.19

MD 9356 TVD 6716.37
INC 92.34 AZ 271.44
VS 2986.71

MD 9451 TVD 6712.41
INC 92.43 AZ 270.75
VS 3081.18



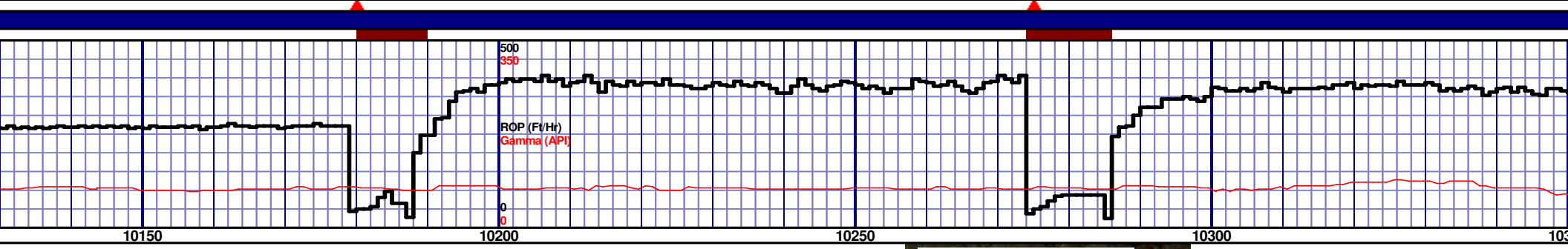
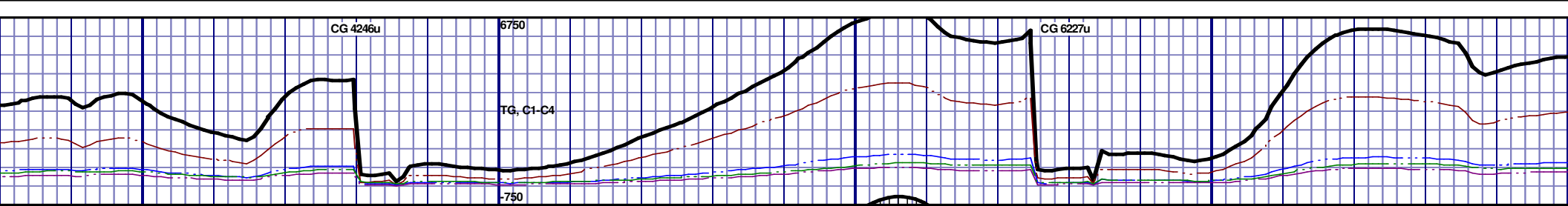


9950'-10000': CHK: 55% MEDDRKGY - MEDLTGY, BLKYTO
SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC
FREE CALC, TRC FREE PYR, IMBD PYR, 45% FREE MRL, NO
STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

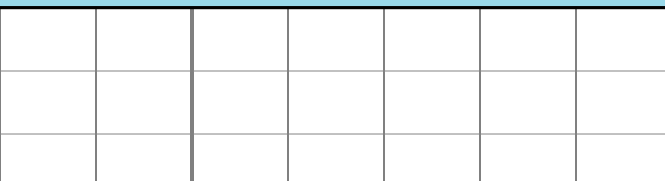
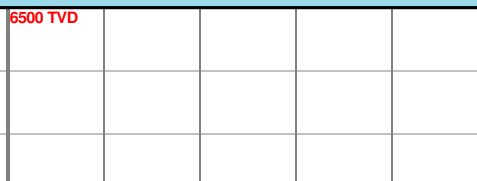

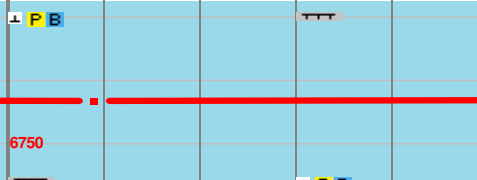
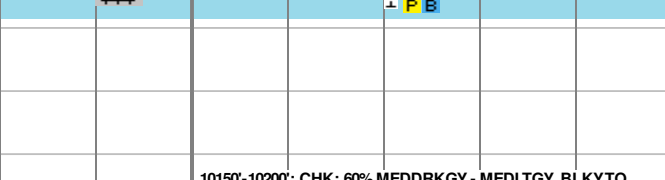
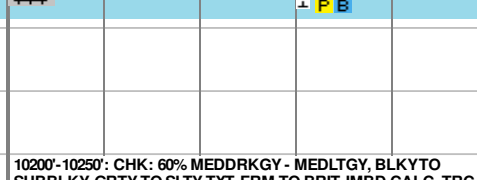
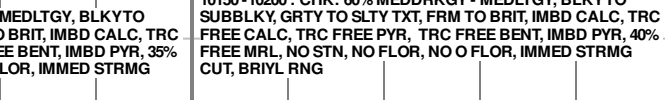
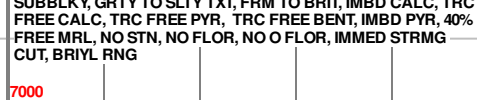
10000'-10050': CHK: 55% MEDDRKGY - MEDLTGY, BLKYTO
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC
FREE CALC, TRC FREE PYR, IMBD PYR, 45% FREE MRL, NO
STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

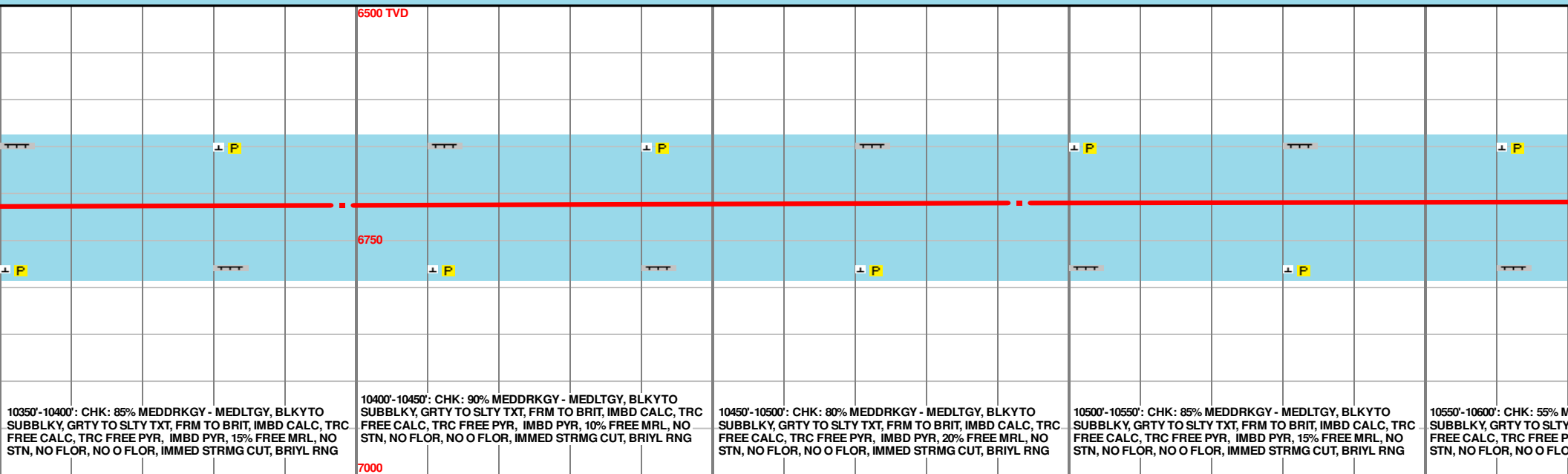
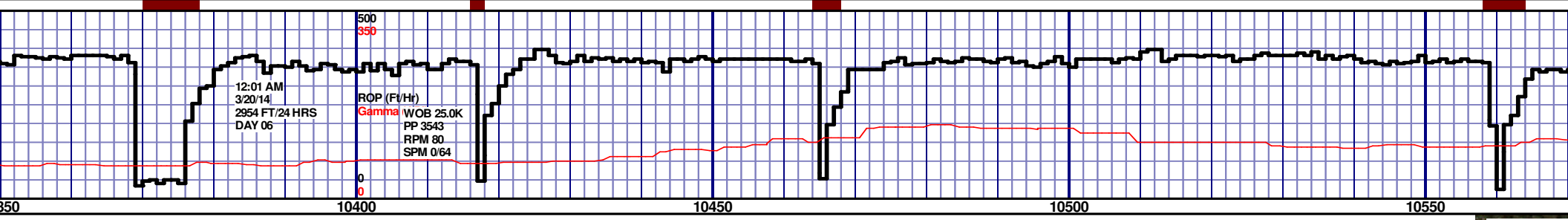
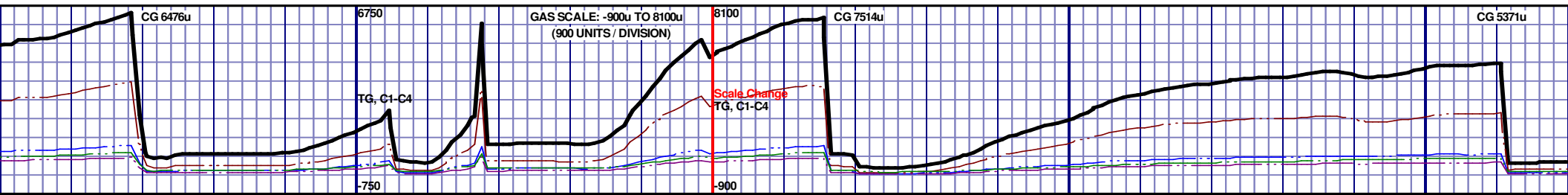
10050'-10100': CHK: 60% MEDDRKGY - MEDLTGY, BLKYTO
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC
FREE CALC, TRC FREE PYR, IMBD PYR, 40% FREE MRL, NO
STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

10100'-10150': CHK: 65% MEDDRKGY -
SUBBLKY, GRTY TO SLTY TXT, FRM TC
FREE CALC, TRC FREE PYR, TRC FREE
FREE MRL, NO STN, NO FLOR, NO OF
CUT, BRIYL RNG



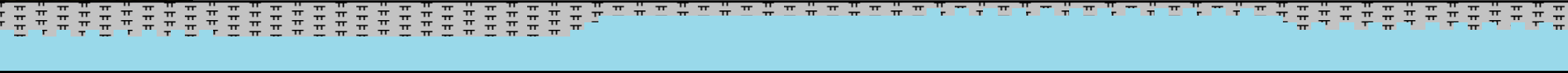
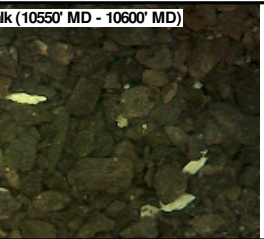
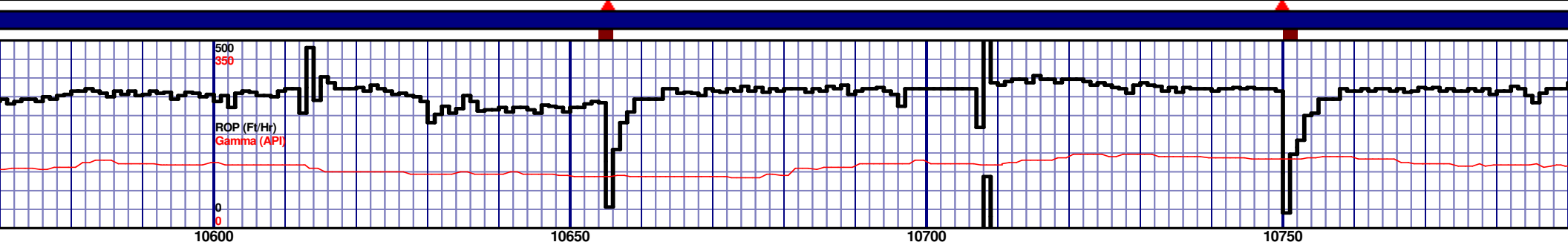
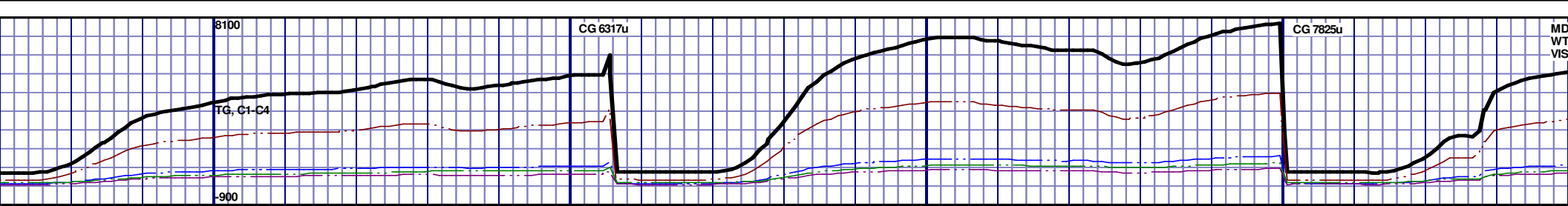
10150' 10200' 10250' 10300' 10350'

6500 TVD									
									
									
									
									
10150'-10200': CHK: 60% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, TRC FREE BENT, IMBD PYR, 40% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG					10200'-10250': CHK: 60% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, TRC FREE BENT, IMBD PYR, 40% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				
					10250'-10300': CHK: 75% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, TRC FREE BENT, IMBD PYR, 25% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				
					10300'-10350': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, IMBD PYR, 30% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				

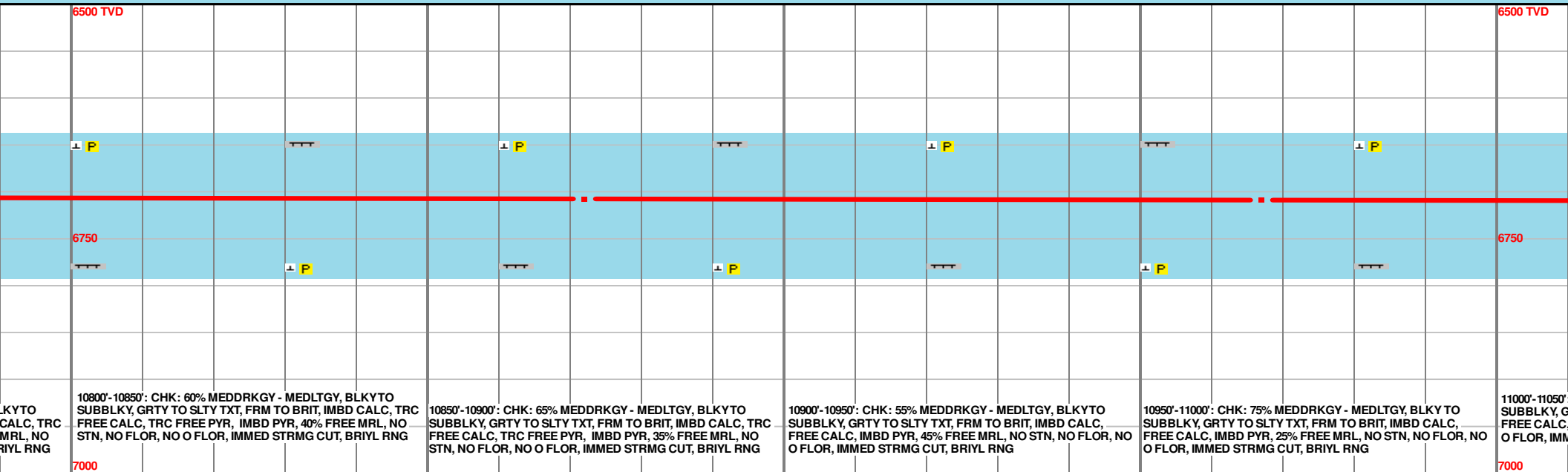
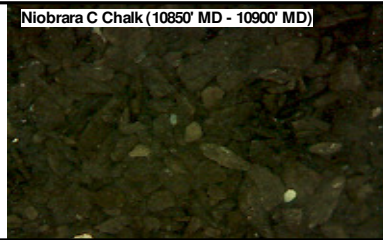
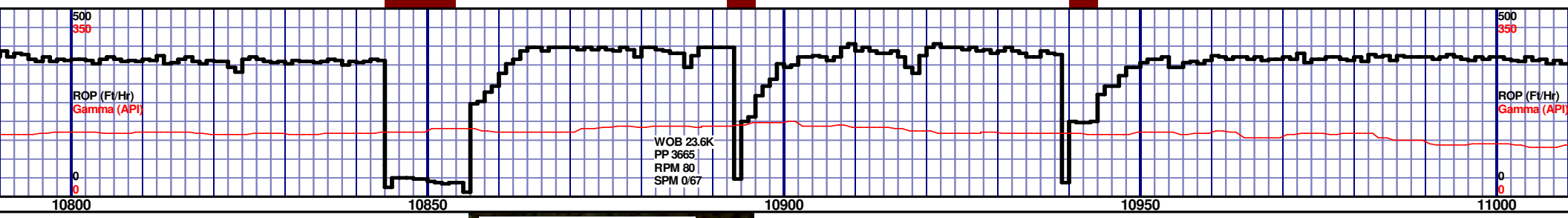


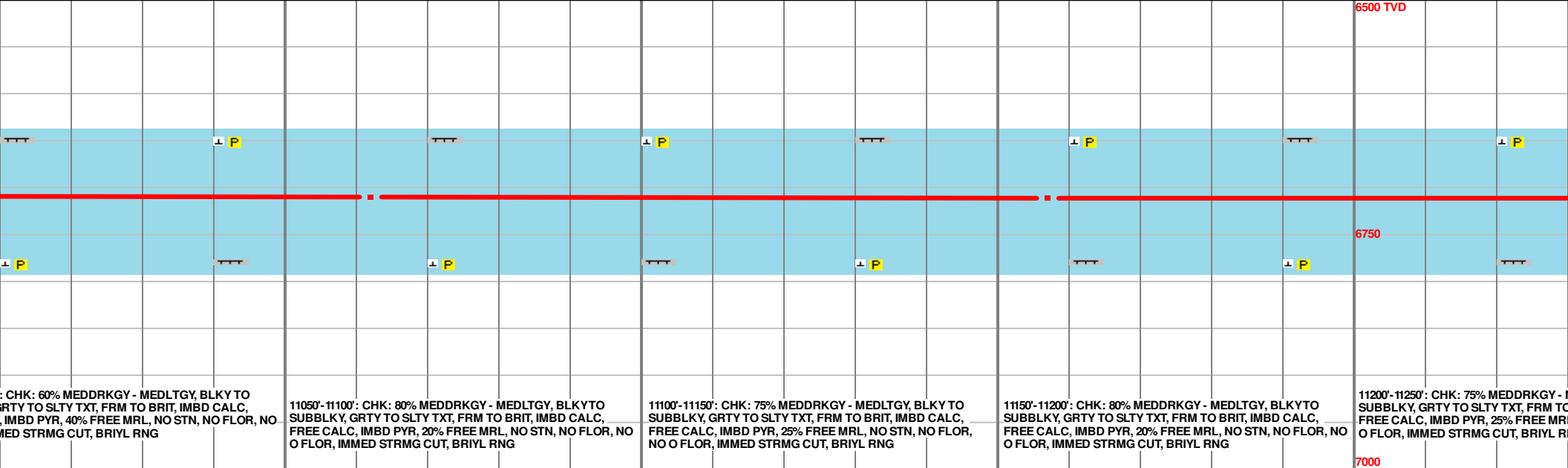
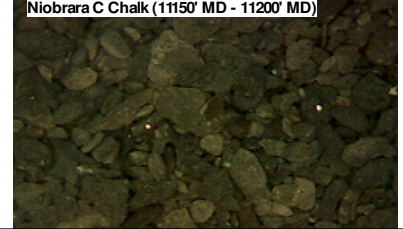
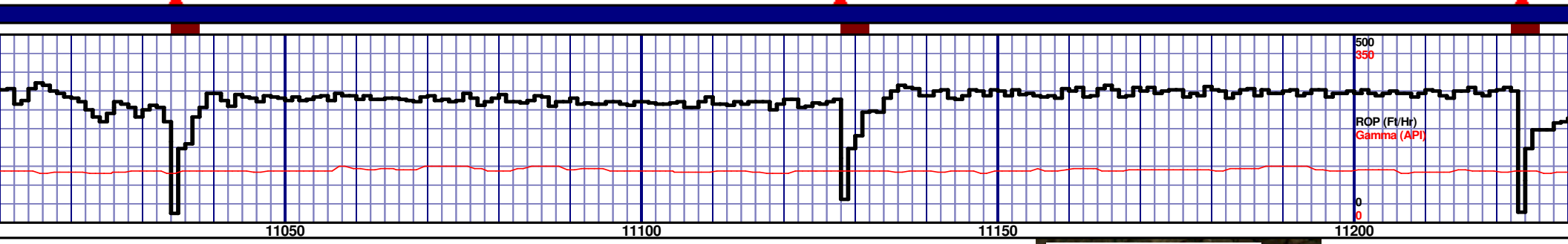
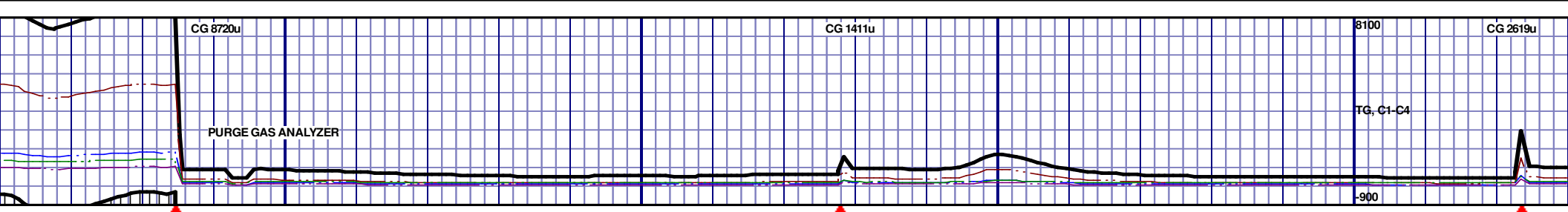
MD 10398 TVD 6712.59
INC 91.02 AZ 269.8
VS 4024.89

MD 10493 TVD 6710.54
INC 91.45 AZ 269.75
VS 4119.6



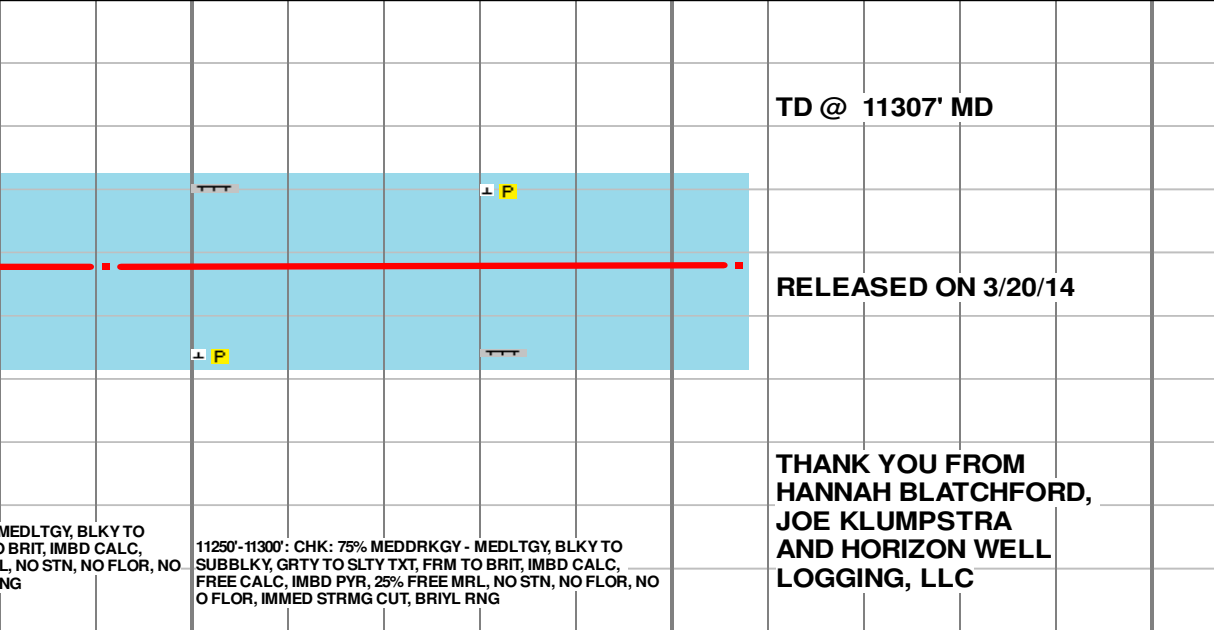
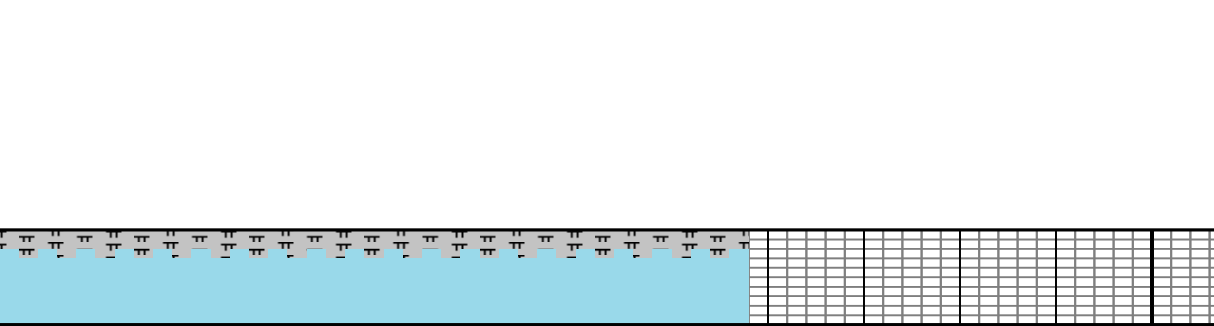
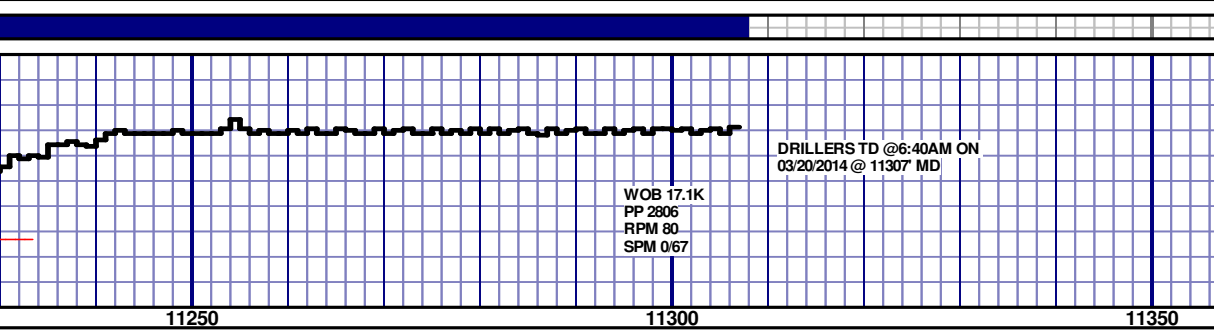
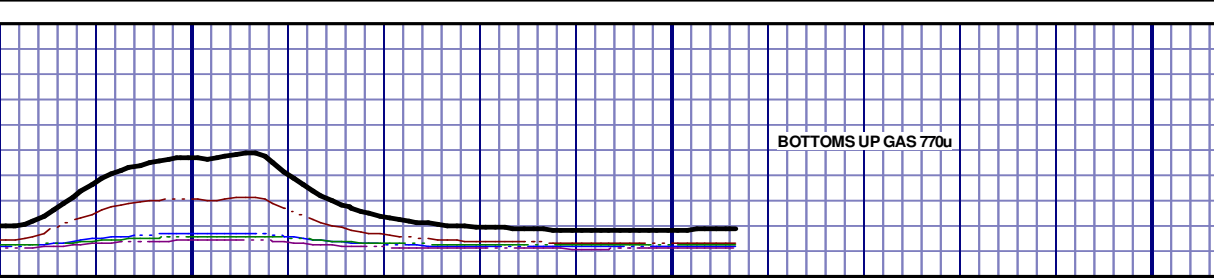
10600'-10650': CHK: 50% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, IMBD PYR, 50% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		10650'-10700': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, IMBD PYR, 20% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		10700'-10750': CHK: 85% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, IMBD PYR, 15% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		10750'-10800': CHK: 65% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC, TRC FREE CALC, TRC FREE PYR, IMBD PYR, 35% FREE MRL, NO STN, NO FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG	
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MD 11062 TVD 6708.92
INC 89.32 AZ 269.89
VS 4687.42

MD 11157 TVD 6710.69
INC 89.75 AZ 270.58
VS 4782.09



MEDLTGY, BLKY TO
D BRIT, IMBD CALC,
L, NO STN, NO FLOR, NO
NG

11250'-11300': CHK: 75% MEDDRKGY - MEDLTGY, BLKY TO
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, IMBD CALC,
FREE CALC, IMBD PYR, 25% FREE MRL, NO STN, NO FLOR, NO
O FLOR, IMMED STRMG CUT, BRIYL RNG

THANK YOU FROM
HANNAH BLATCHFORD,
JOE KLUMPSTRA
AND HORIZON WELL
LOGGING, LLC