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### Customer Information

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

**Geologist:** Cassidy Miller  
Noble Energy Inc.

### Mud Logging Details

**Logger:** Andrew Christiano & Hannah Blatchford  
**Log Interval:** 6650' MD to 16189' MD  
**Start Date:** January 1, 2014  
**Release Date:** January 10, 2014

### Well Information

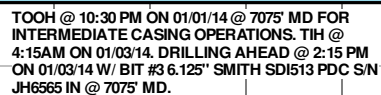
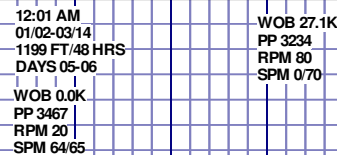
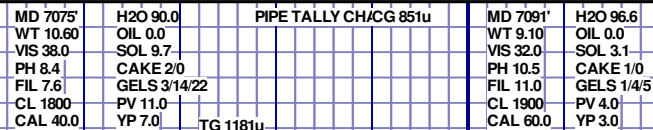
**Well Name:** NCLP PC AA04-62-1HN  
Horizontal  
**Location:** 4-T6N-R63W  
600' FSL, 250' FWL

**County:** Weld  
**State:** Colorado

**Drilling Rig:** H&P 321  
**Total Depth:** 16189' MD  
**TD Date:** January 10, 2014  
**Formation:** Niobrara B Chalk  
**KB Elevation:** 4740'  
**GR Elevation:** 4710'  
**API Number:** 05-123-37175-0000

MD 6750 TVD 6593.35  
INC 61.15 AZ 92.56  
VS 354.47





**NIOBRARA B MARL**  
7070' MD 6662' TVD



**SAMPLE INTERVAL CHANGED TO 50'**

7010'-7040': CHK: 60% MEDDRKGY -  
MEDLTGY, BLKY TO SUBBLKY,  
GRTY TO SLTY TXT, FRM TO BRIT,  
FREE CALC, FREE PYR, TRC FREE  
BENT, FREE MRL, NO STN, 10%  
FLOR, NO O FLOR, IMMED STRMG  
CUT, BRIYL RNG

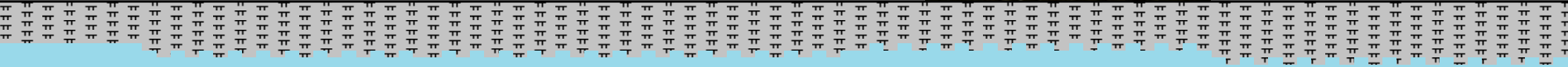
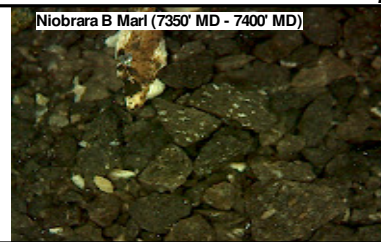
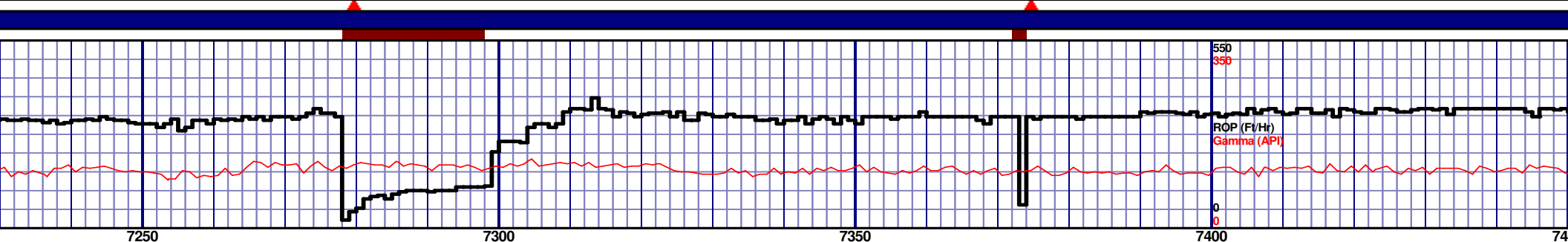
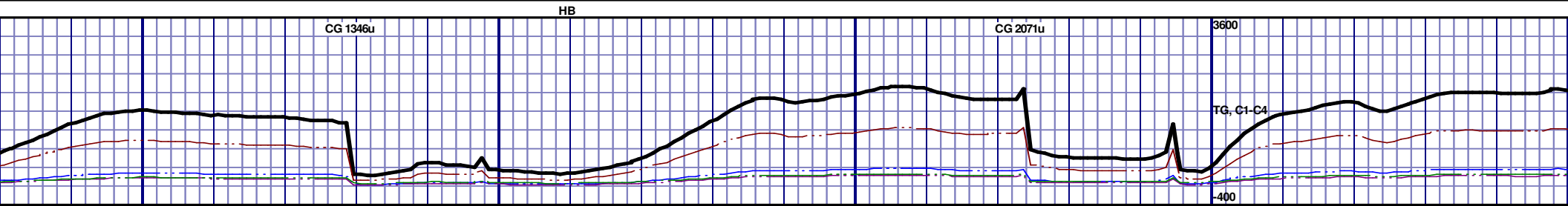
7040'-7070': CHK: 70% MEDDRKGY -  
MEDLTGY, BLKY TO SUBBLKY,  
GRTY TO SLTY TXT, FRM TO BRIT,  
ABDT FREE CALC, FREE PYR,  
FREE MRL, NO STN, 10% FLOR, NO  
O FLOR, IMMED STRMG CUT, BRIYL  
RNG

7070'-7100': MRST: 65% MEDDRKGY-MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, IMBD PYR, TRC, FREE CHK, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

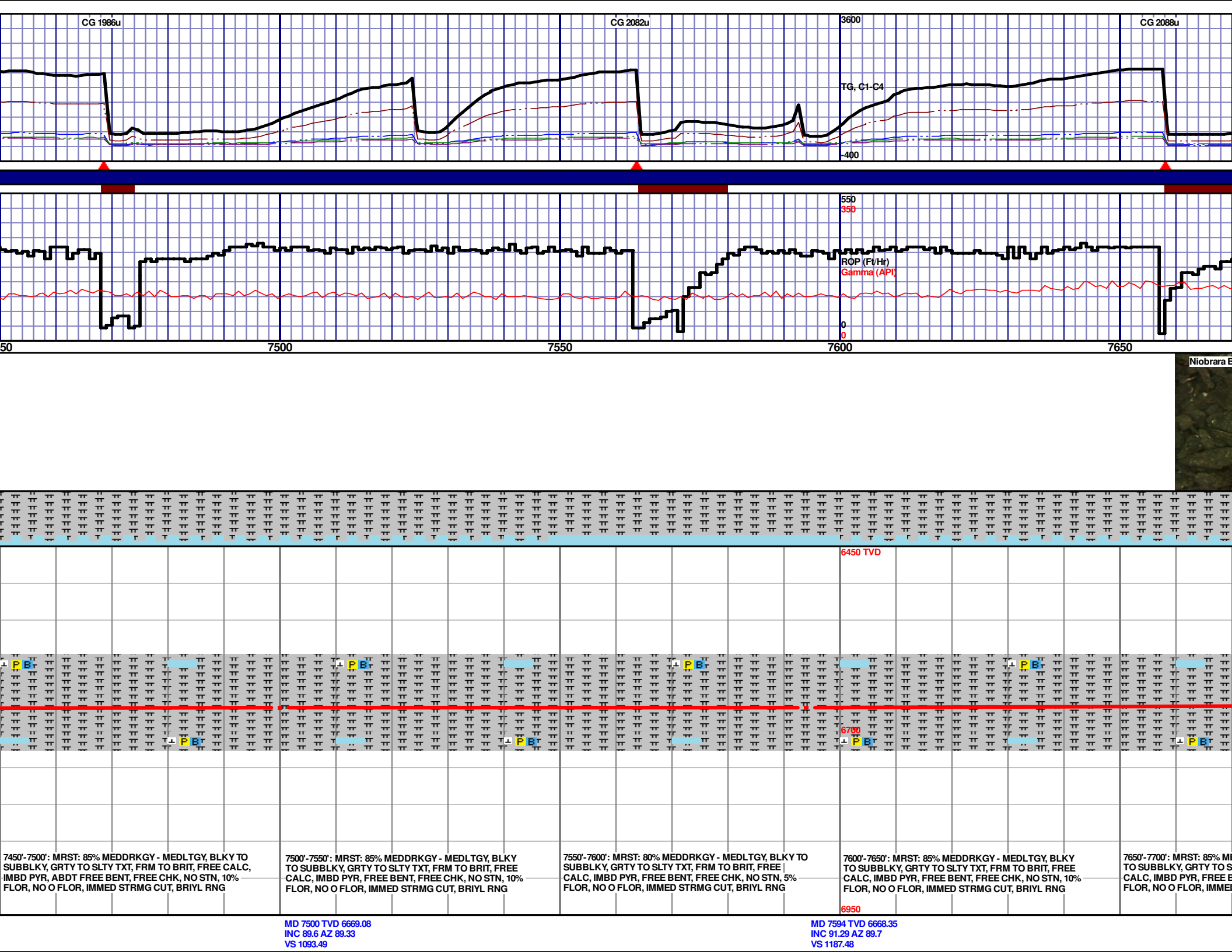
7100'-7150': MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC,  
IMBD PYR, TRC FREE BENT, FREE CHK, NO STN, 5% FLOR,  
NO O FLOR. IMMED STRMG CUT. BRIYL RNG

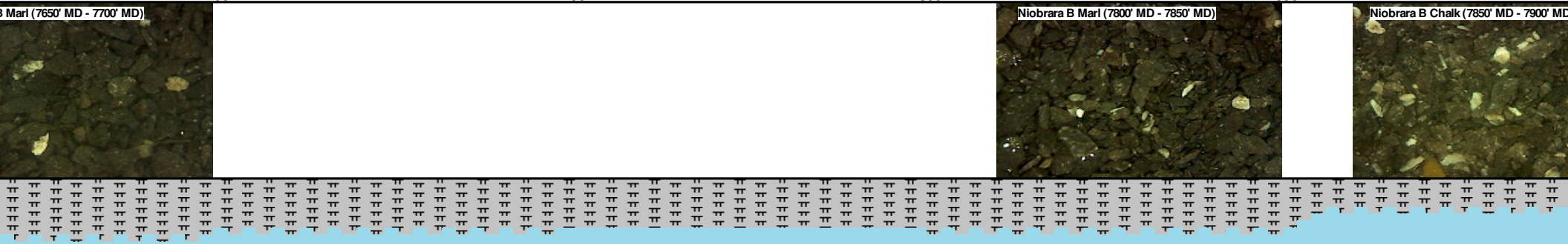
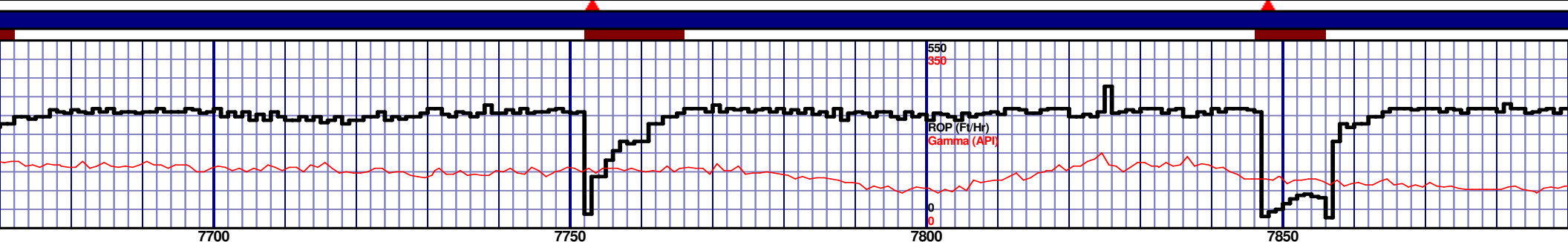
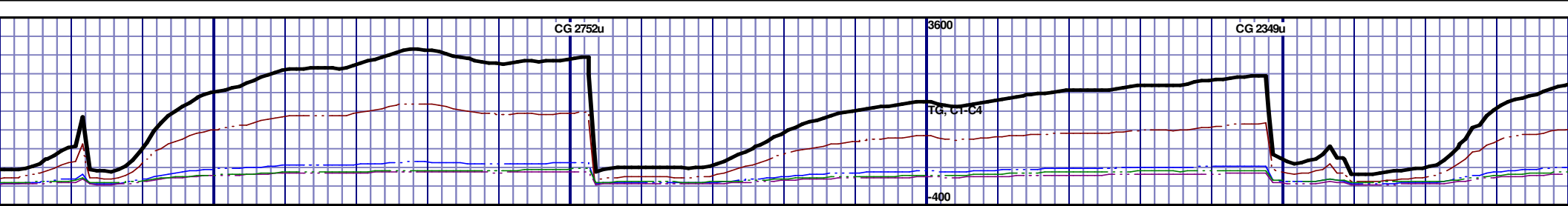
7150'-7200': MRST: 85% MEDDRKGY - MEDLTGY, BLKY TO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC,  
IMBD PYR, TRC FREE BENT, FREE CHK, NO STN, 10% FLOR,  
NO O FLOR. IMMED STRMG CUT. BRIYL RNG

7200'-7250': MRST: 60% MEDDRKGY - M  
SUBBLKY, GRTY TO SLTY TXT, FRM TO  
IMBD PYR, TRC FREE BENT, FREE CH  
NO O FLOR. IMMED STRMG CUT. BRN

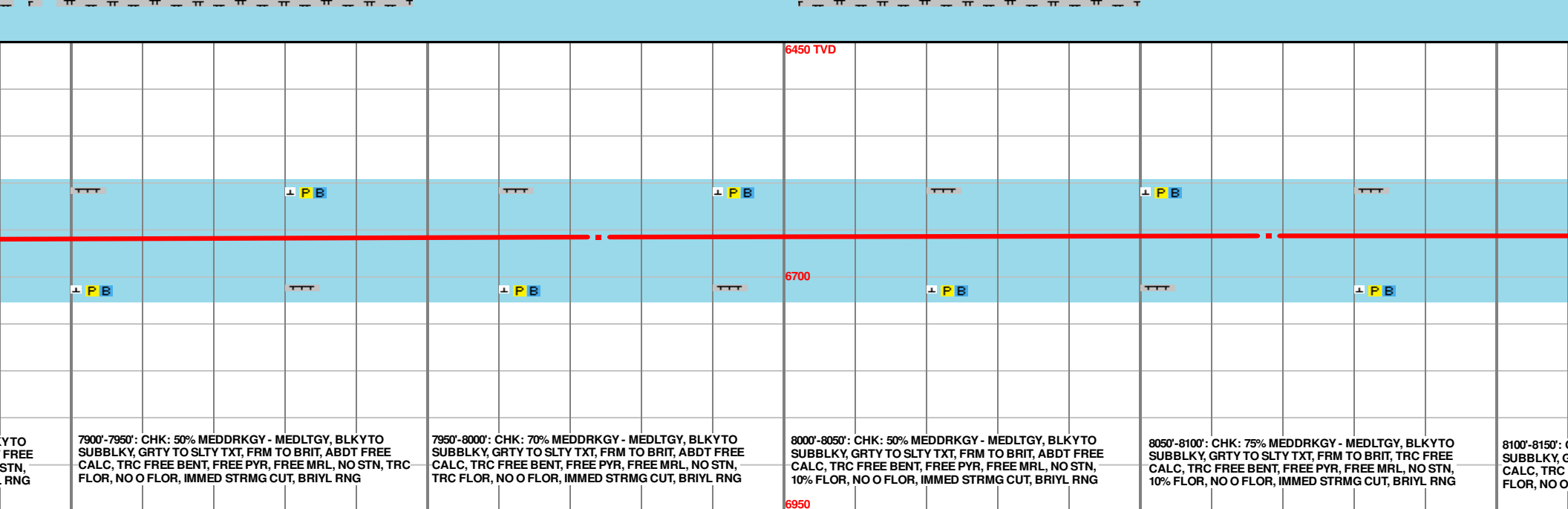
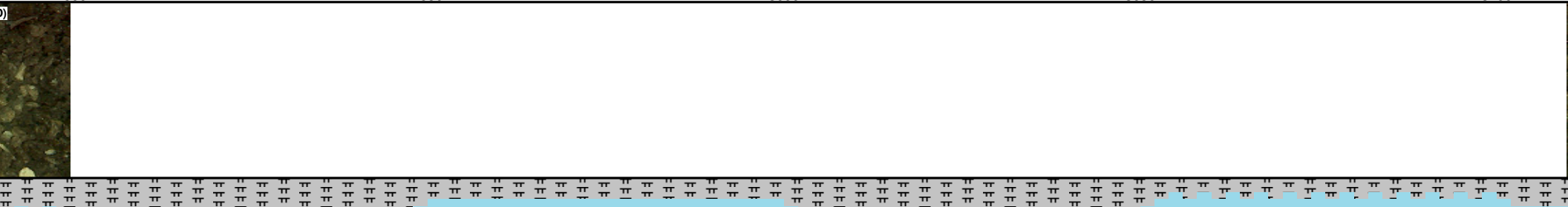
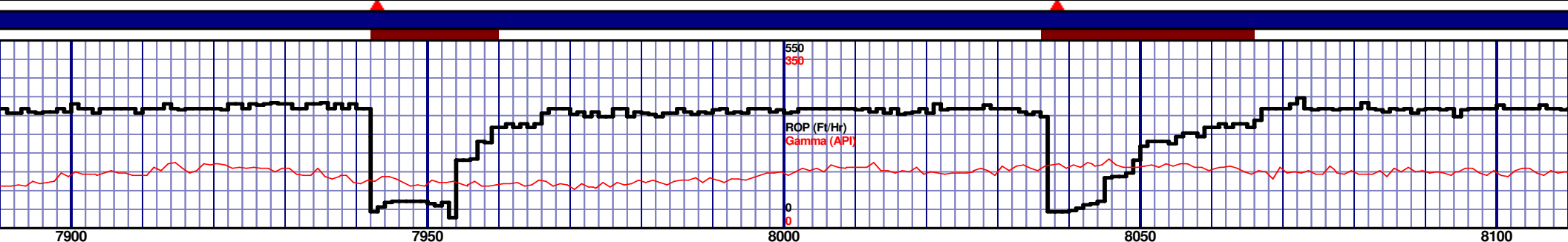
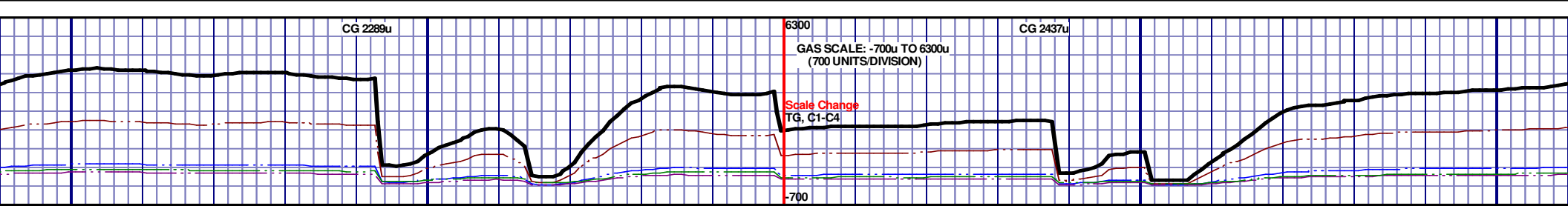


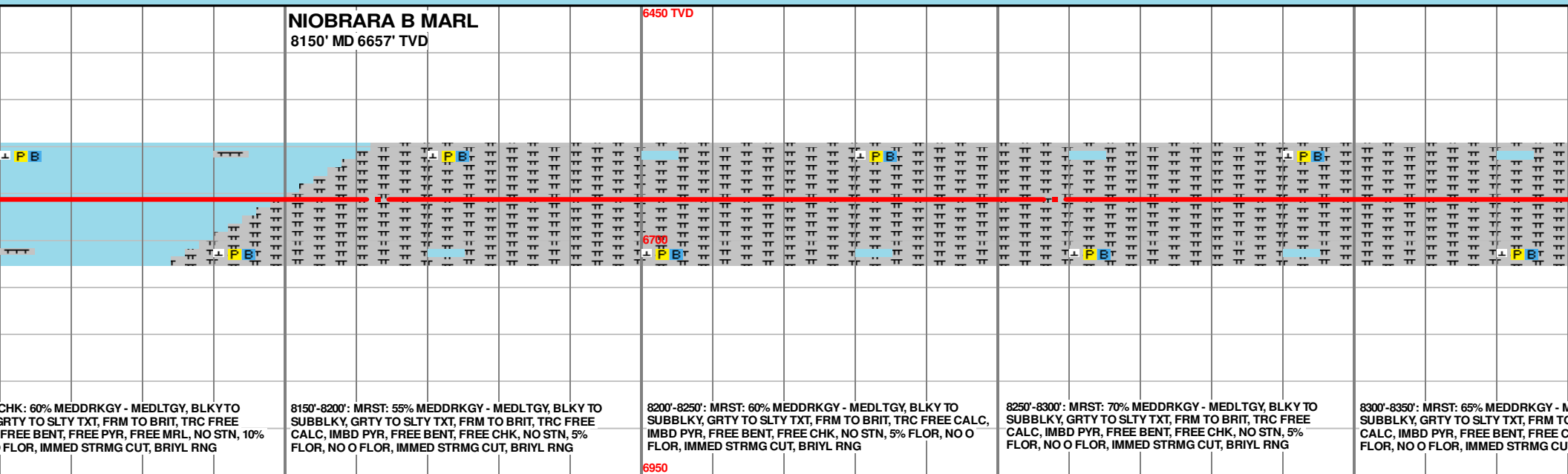
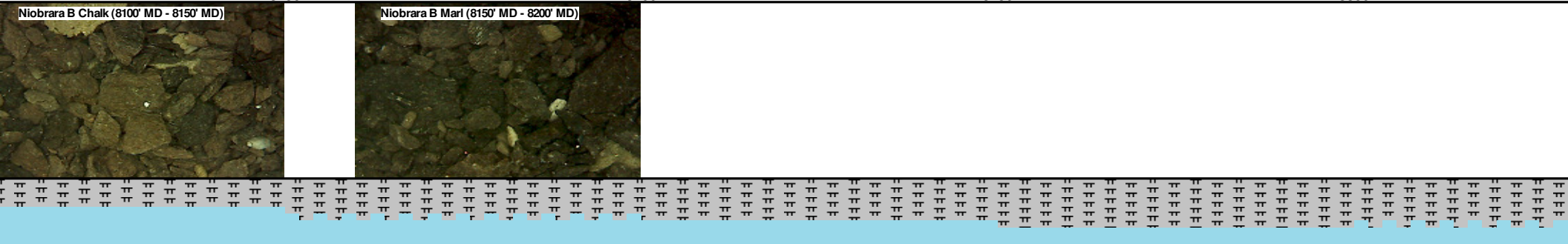
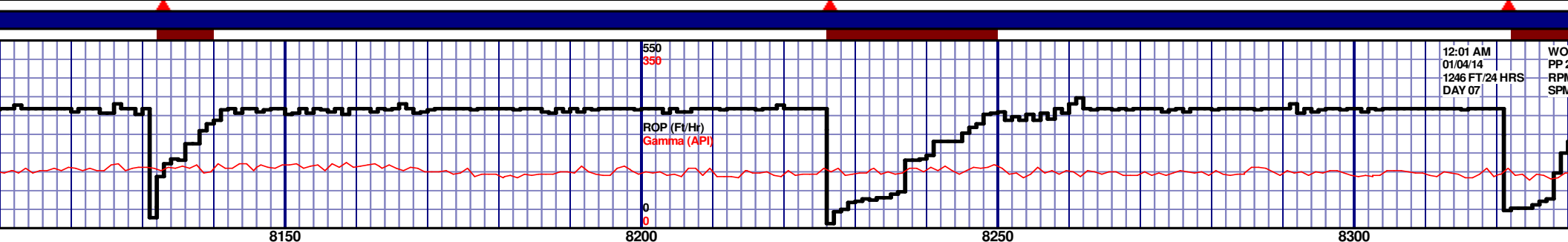
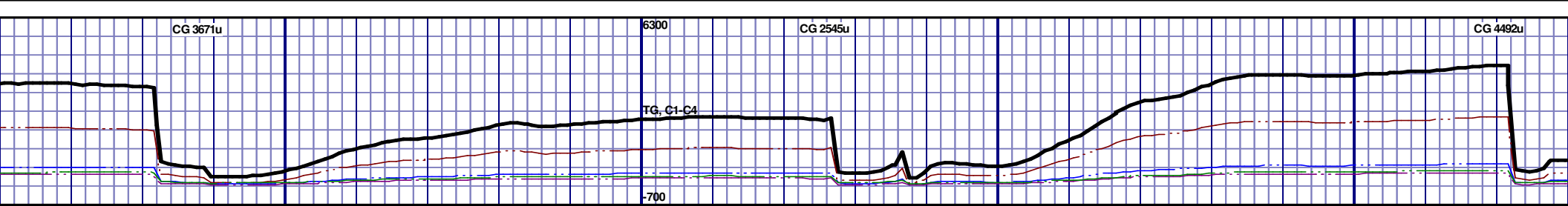
MEDLTGY, BLKY TO O BRIT, FREE CALC, CHK, NO STN, 10% FLOR, YL RNG									
7250'-7300': MRST: 75% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, IMBD PYR, TRC FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG									
7300'-7350': MRST: 75% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, IMBD PYR, FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG									
7350'-7400': MRST: 65% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, IMBD PYR, FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG									
7400'-7450': MRST: 85% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, IMBD PYR, FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG									





6450 TVD				NIOBRARA B CHALK 7850' MD 6661' TVD			
7700'-7750': MRST: 75% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, IMBD PYR, FREE BENT, FREE CHK, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				7750'-7800': MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, IMBD PYR, FREE BENT, FREE CHK, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG			
7800'-7850': MRST: 75% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, IMBD PYR, ABDT FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				7850'-7900': CHK: 55% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG			

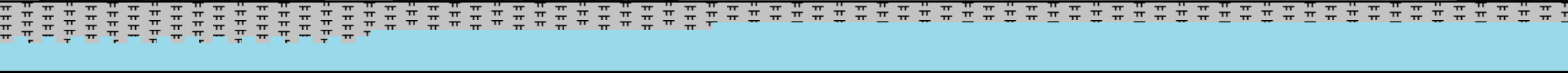
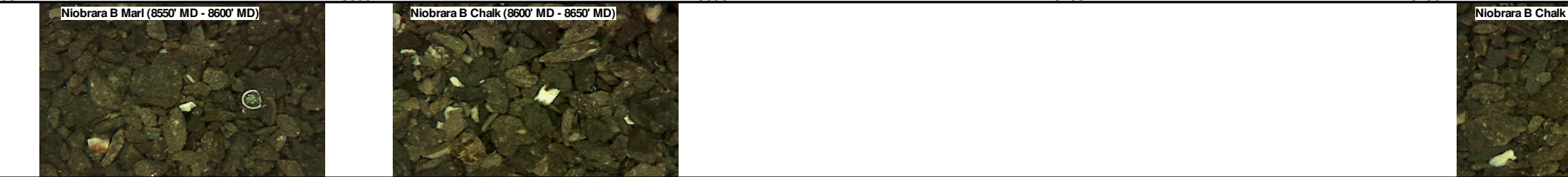
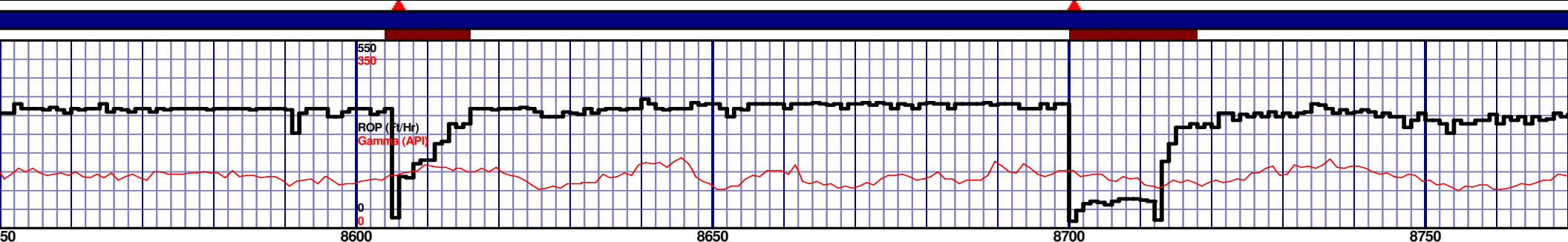
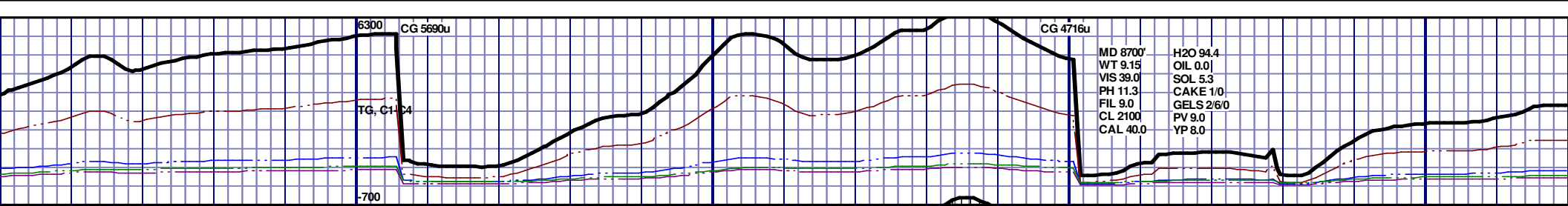




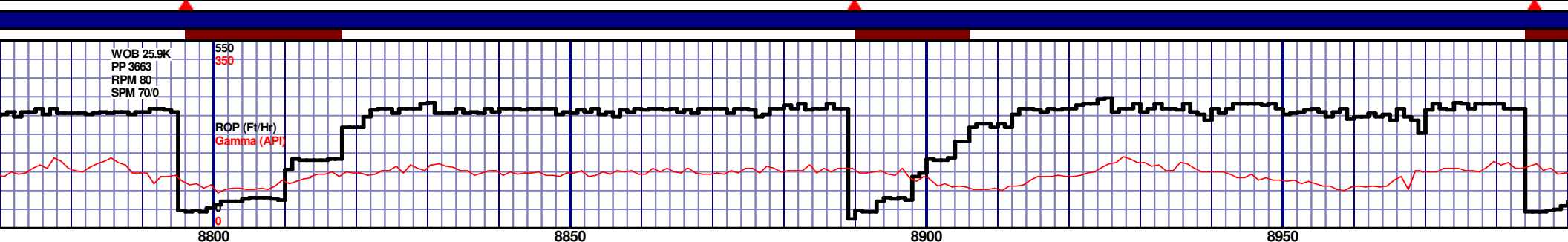
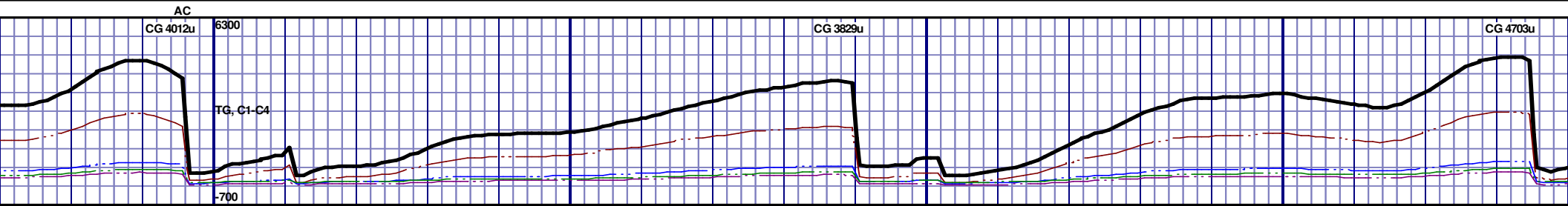
MD 8163 TVD 6656.68  
INC 90.19 AZ 87.16  
VS 1756.11

MD 8258 TVD 6656.24  
INC 90.34 AZ 88.63  
VS 1851.02





6450 TVD				
NIOBRARA B CHALK				
8600' MD 6655' TVD				



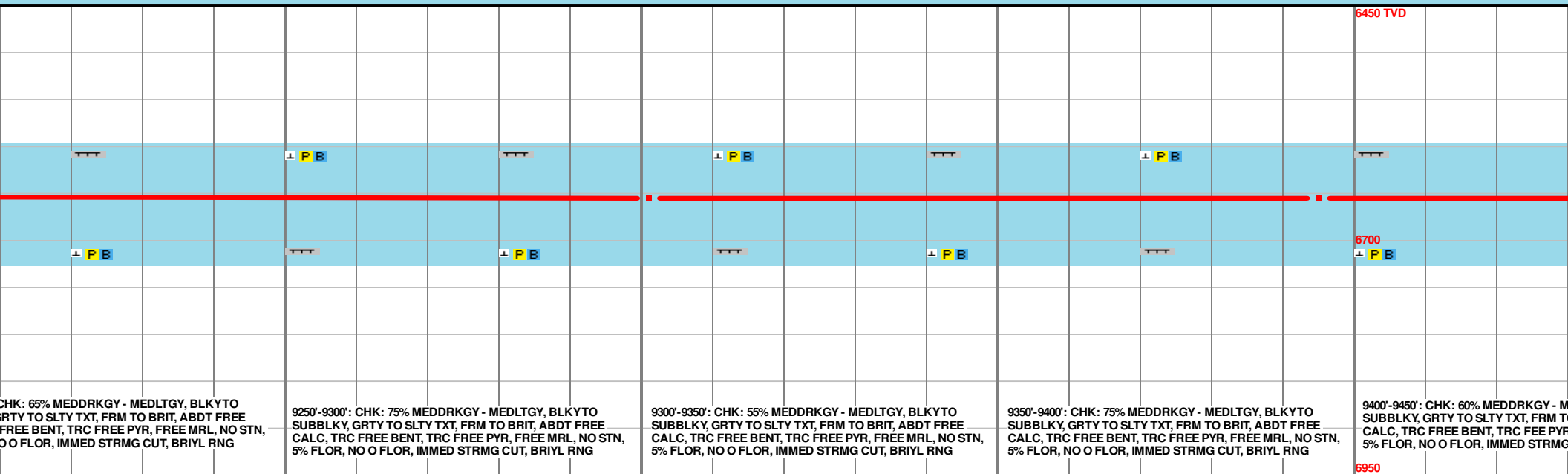
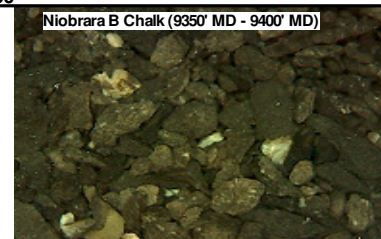
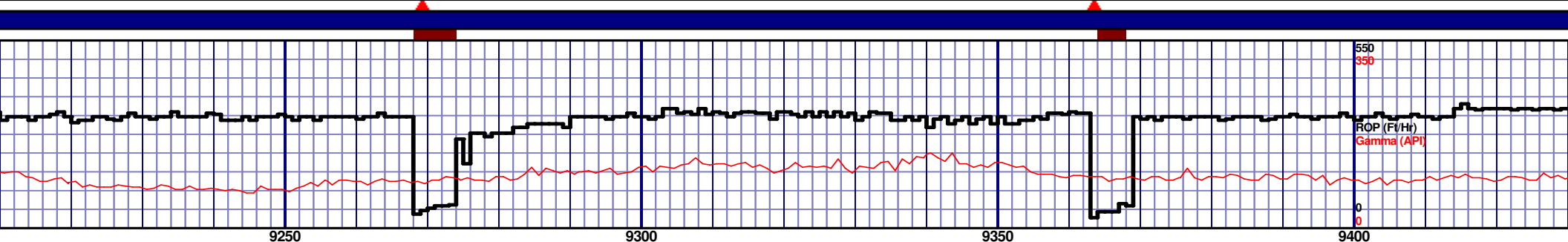
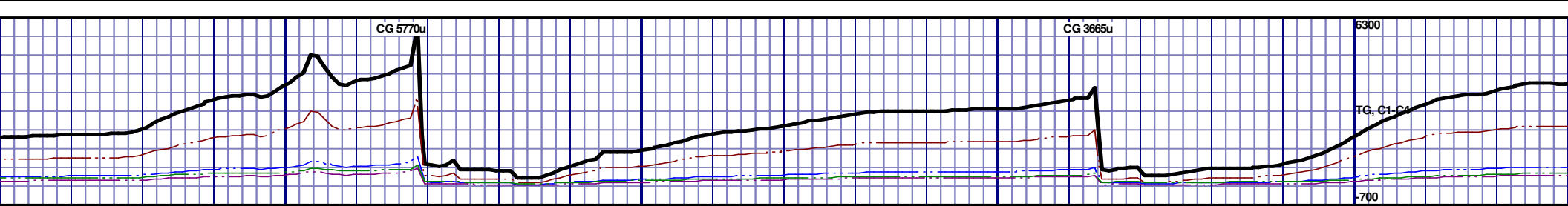
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6450 TVD											
P B		P		P		P		P B		P B	
6700		P		P		P		P		P B	
8800'-8850': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		8850'-8900': CHK: 60% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		8900'-8950': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		8950'-9000': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG					
6950											

MD 8827 TVD 6658.88  
INC 90.12 AZ 88.73  
VS 2419.71

MD 8921 TVD 6656.22  
INC 93.12 AZ 91.14  
VS 2513.65





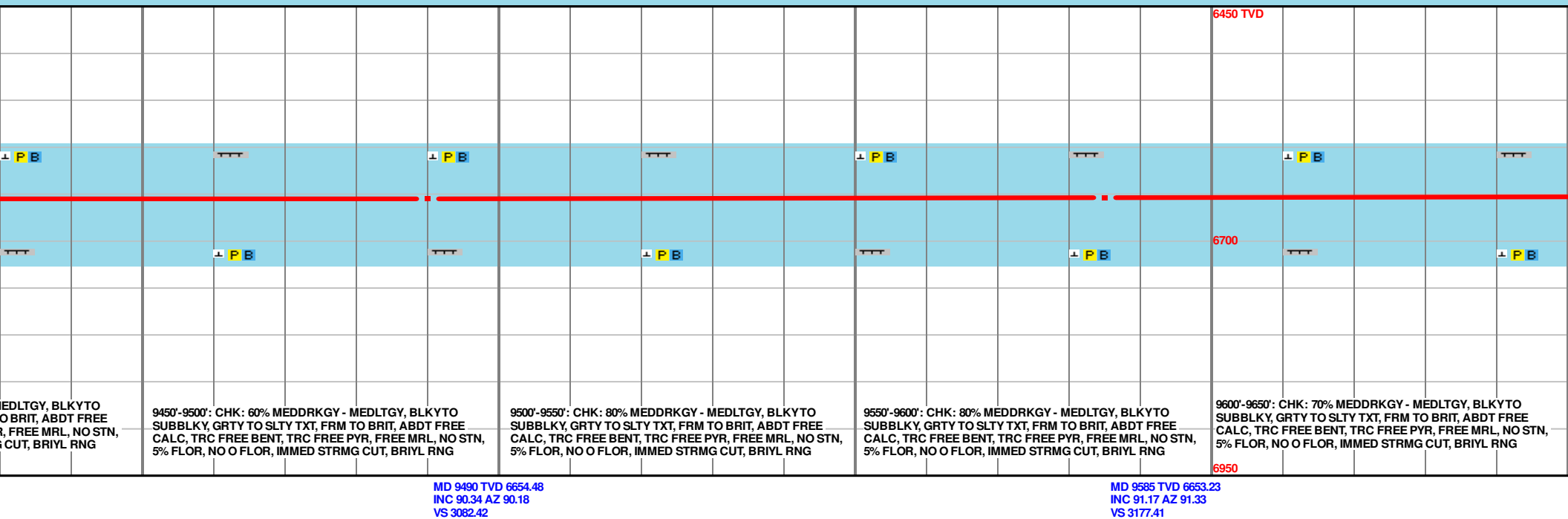
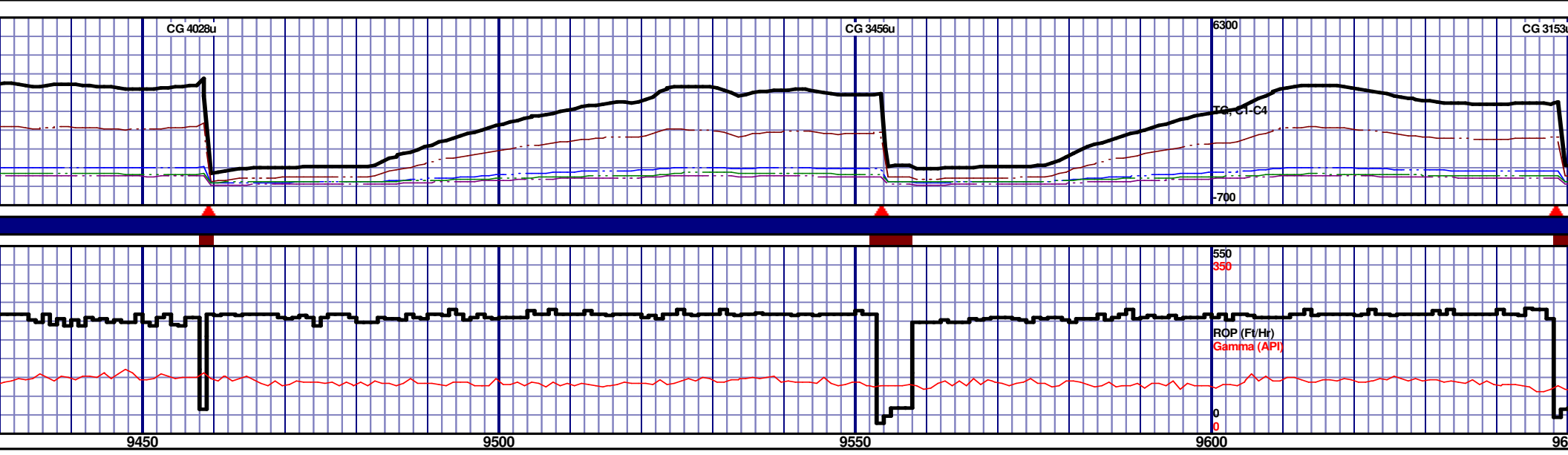
CHK: 65% MEDDRKGY - MEDLTGY, BLKYTO  
ARTY TO SLTY TXT, FRM TO BRIT, ABDT FREE  
FREE BENT, TRC FREE PYR, FREE MRL, NO STN,  
O O FLOR, IMMED STRMG CUT, BRIYL RNG

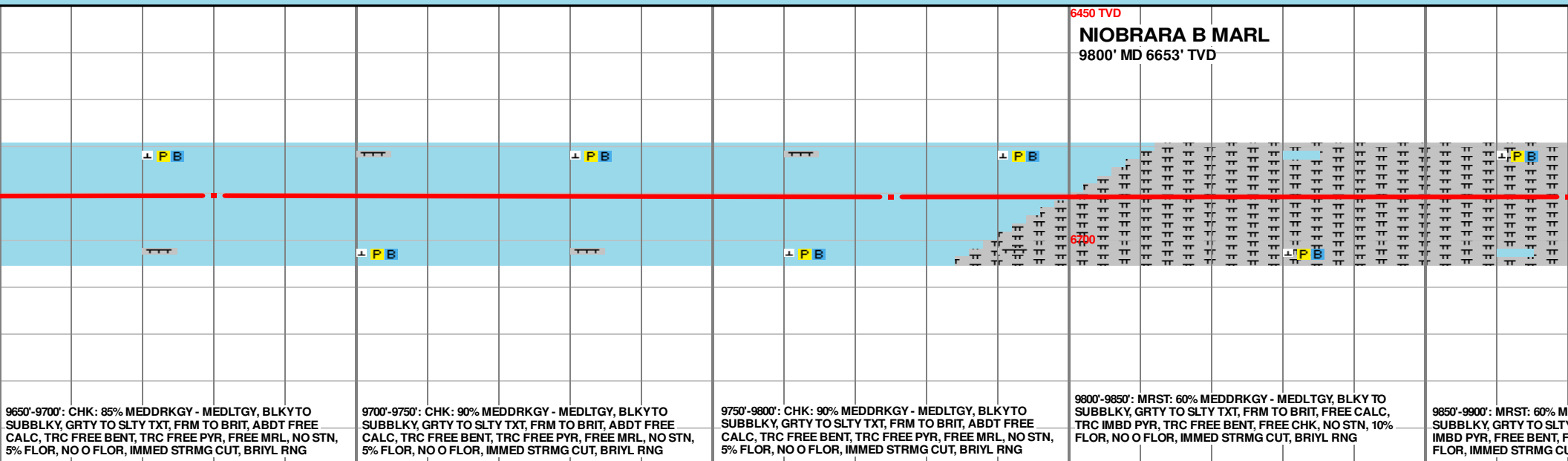
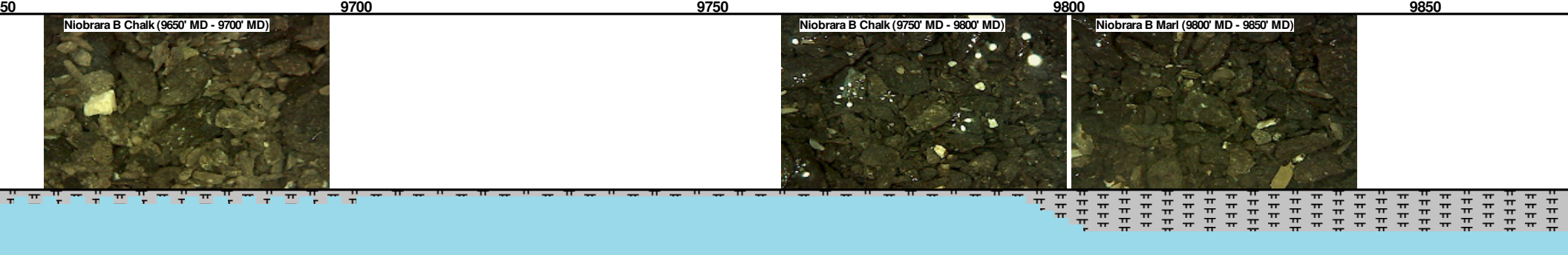
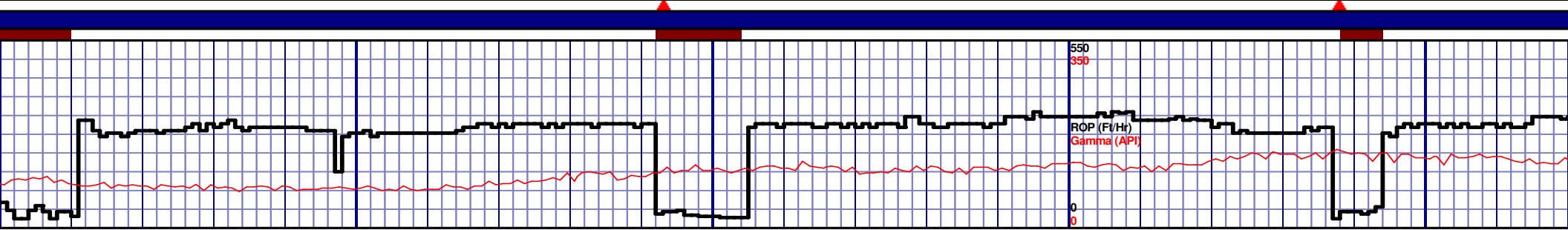
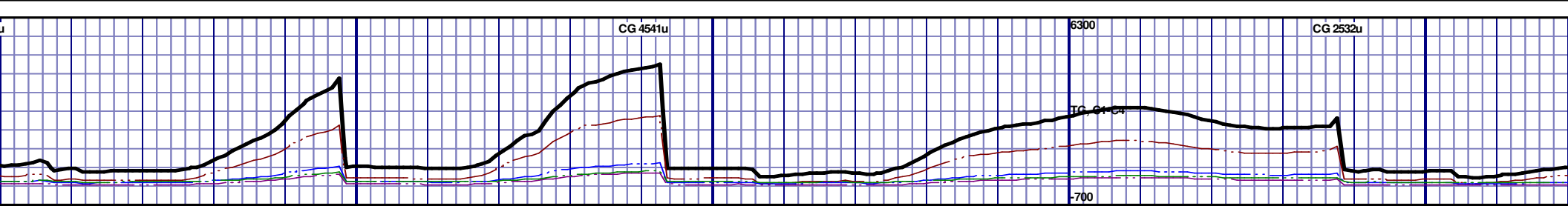
9250'-9300': CHK: 75% MEDDRKGY - MEDLTGY, BLKYTO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE  
CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN,  
5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

9300'-9350': CHK: 55% MEDDRKGY - MEDLTGY, BLKYTO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE  
CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN,  
5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

9350'-9400': CHK: 75% MEDDRKGY - MEDLTGY, BLKYTO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE  
CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN,  
5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

9400'-9450': CHK: 60% MEDDRKGY - M  
SUBBLKY, GRTY TO SLTY TXT, FRM TO  
CALC, TRC FREE BENT, TRC FEE PYR,  
5% FLOR, NO O FLOR, IMMED STRMG





9650'-9700': CHK: 85% MEDDRKGY - MEDLTGY, BLKYO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE  
CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN,  
5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

9700'-9750': CHK: 90% MEDDRKGY - MEDLTGY, BLKYO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE  
CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN,  
5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

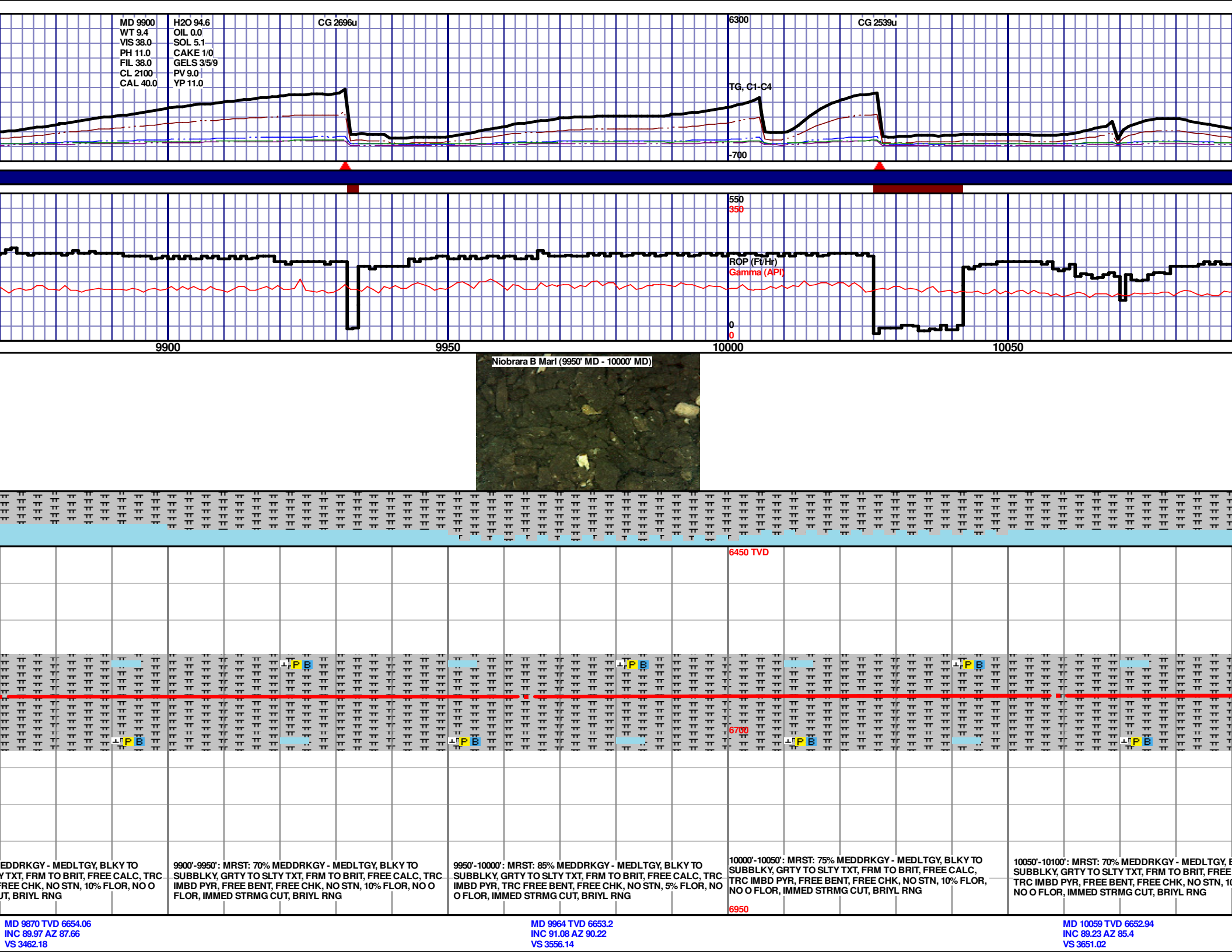
9750'-9800': CHK: 90% MEDDRKGY - MEDLTGY, BLKYO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE  
CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN,  
5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

9800'-9850': MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC,  
TRC IMBD PYR, TRC FREE BENT, FREE CHK, NO STN, 10%  
FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

9850'-9900': MRST: 60% MEDDRKGY - MEDLTGY, BLKY TO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC,  
TRC IMBD PYR, TRC FREE BENT, FREE CHK, NO STN, 10%  
FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

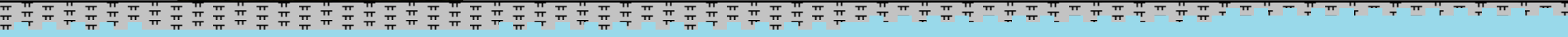
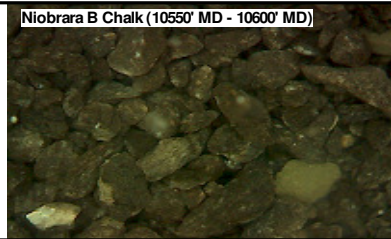
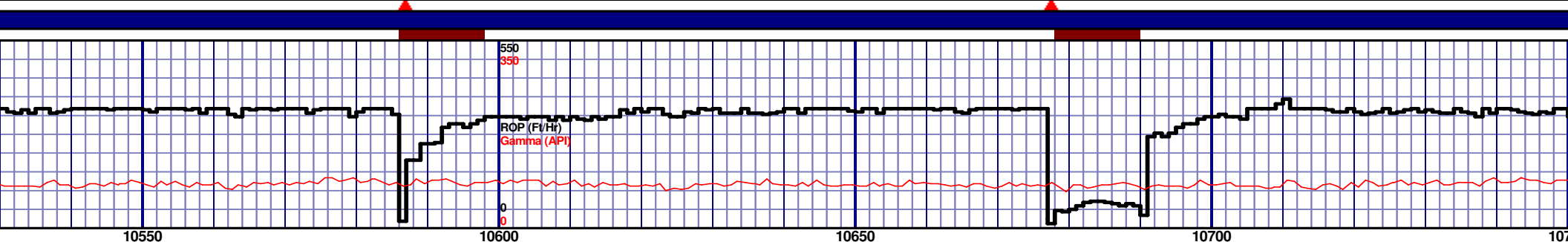
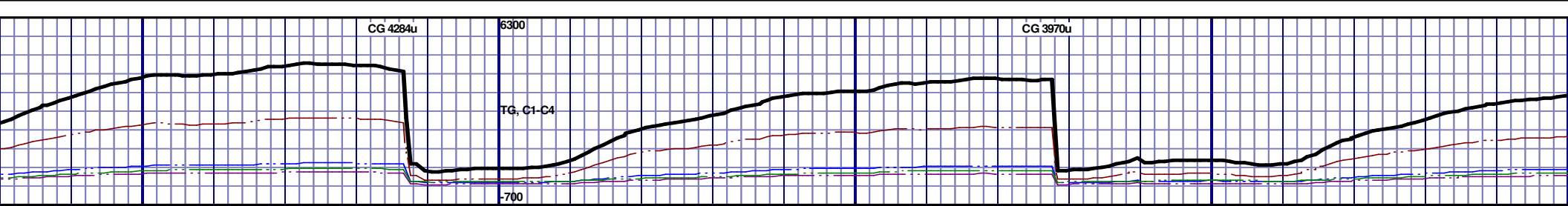
MD 9680 TVD 6652.36  
INC 89.88 AZ 89.85  
VS 3272.4

MD 9775 TVD 6653.24  
INC 89.05 AZ 86.75  
VS 3367.32

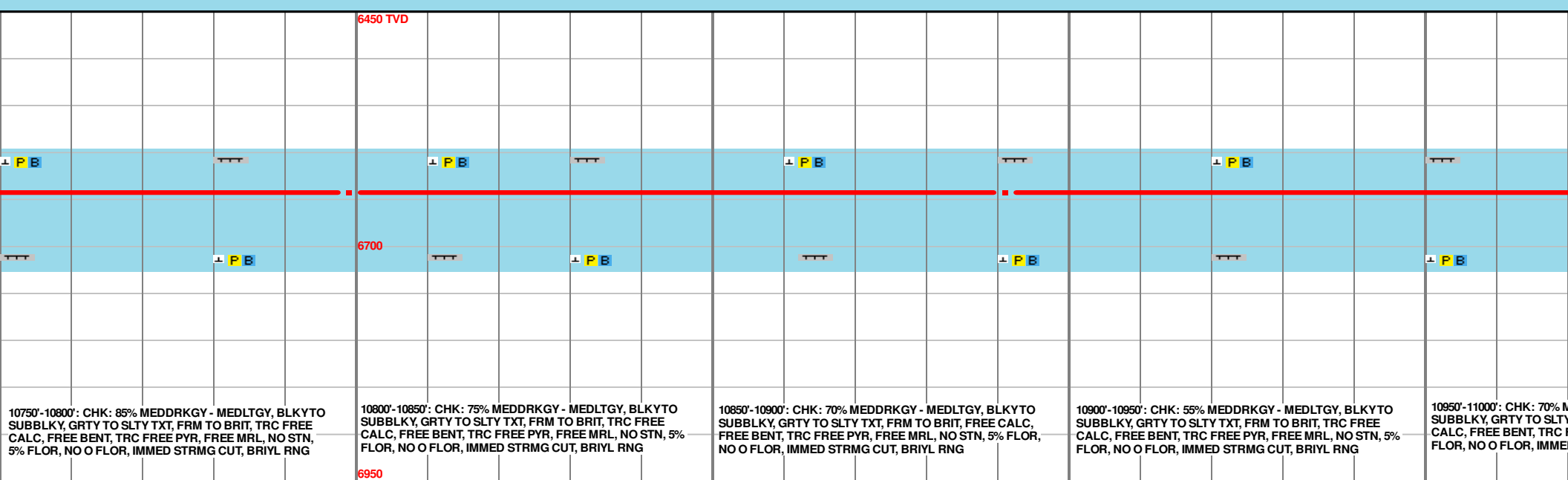
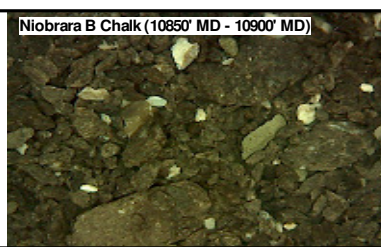
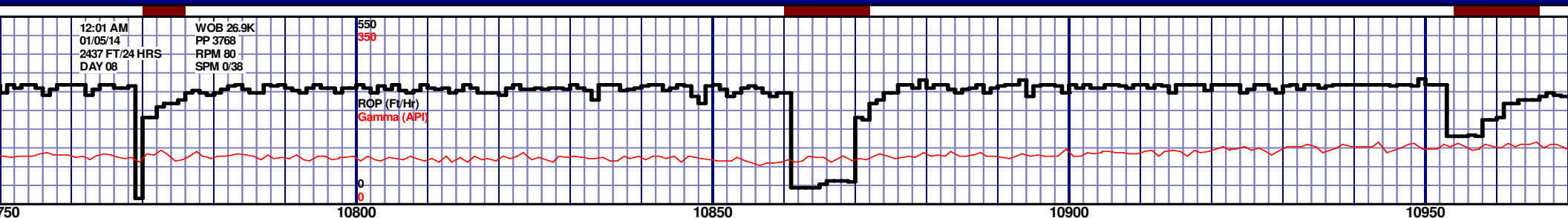
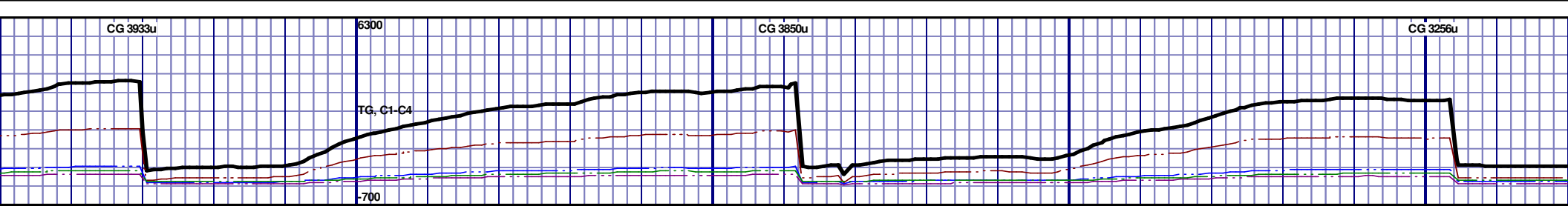








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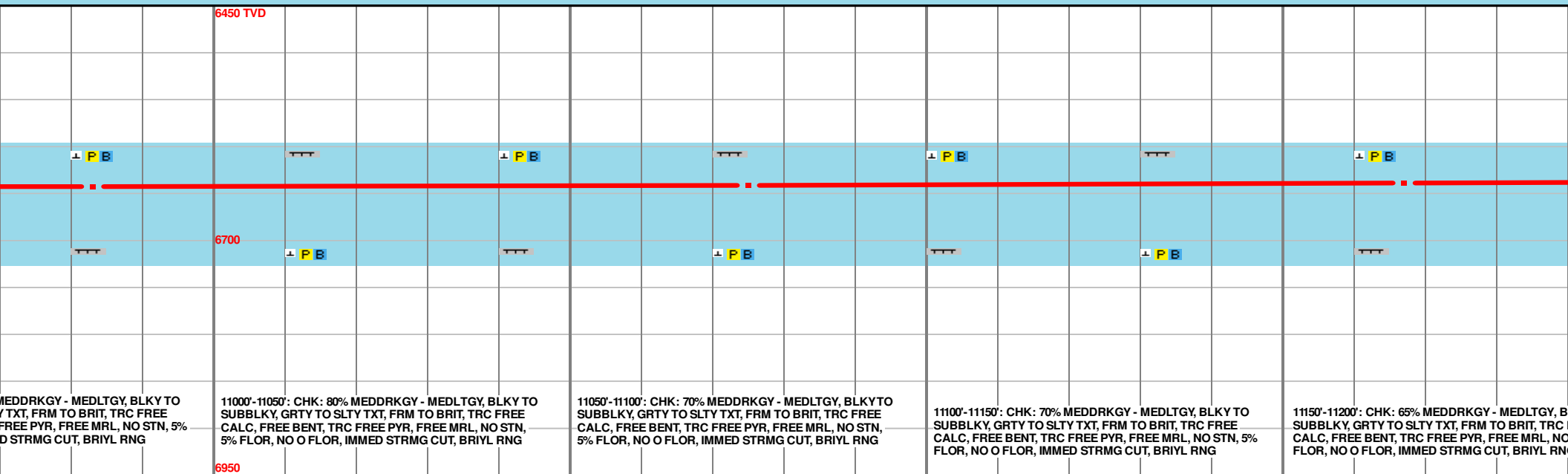
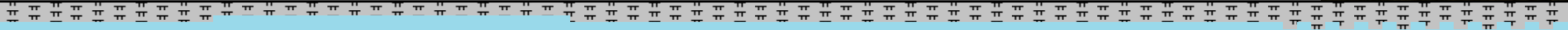
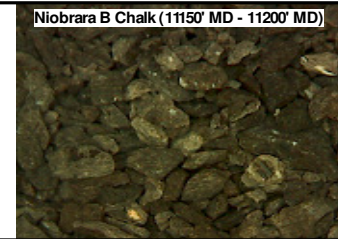
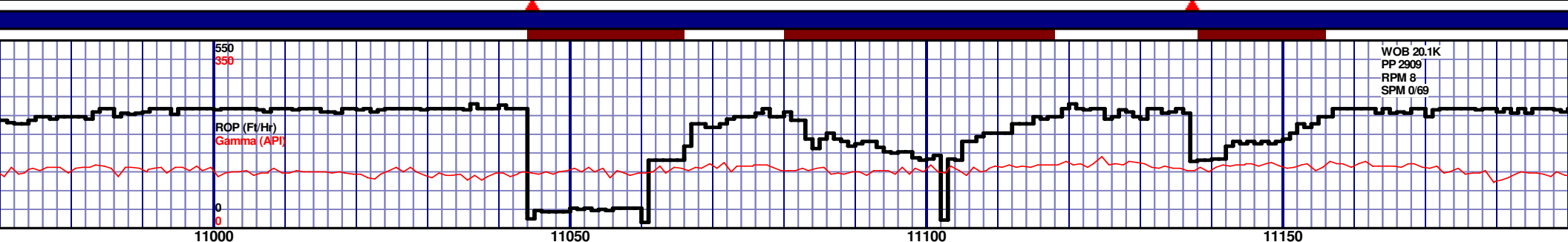
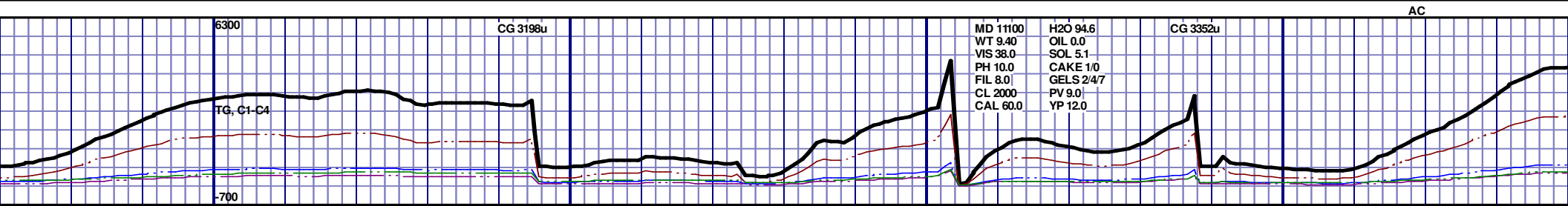
10750'-10800': CHK: 85% MEDDRKGY - MEDLTGY, BLKYTO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE  
CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5%  
FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

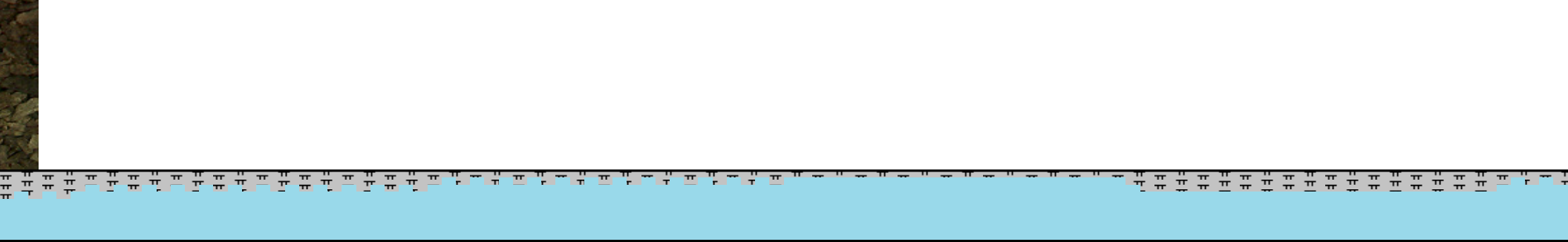
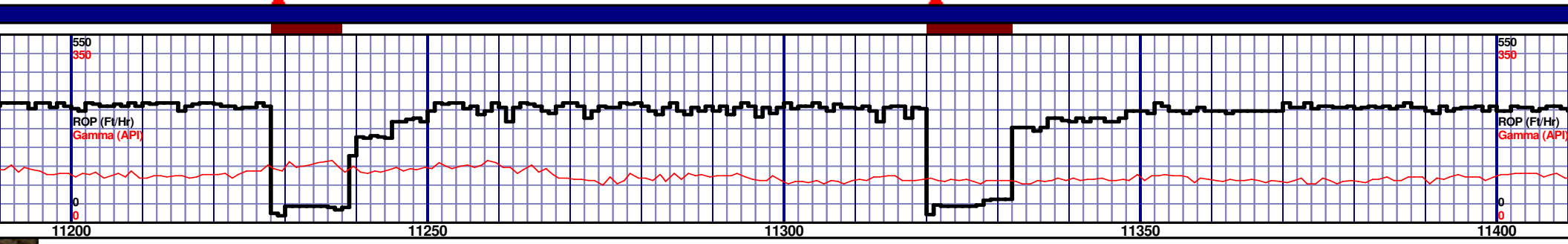
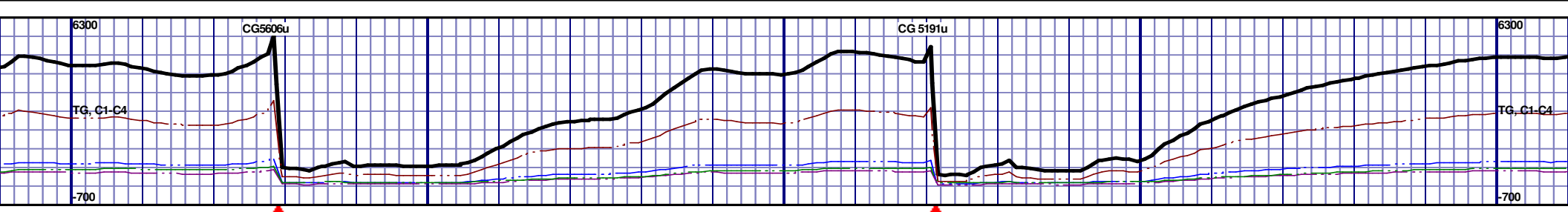
10800'-10850': CHK: 75% MEDDRKGY - MEDLTGY, BLKYTO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE  
CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5%  
FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

10850'-10900': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC,  
FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR,  
NO O FLOR, IMMED STRMG CUT, BRIYL RNG

10900'-10950': CHK: 55% MEDDRKGY - MEDLTGY, BLKYTO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE  
CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5%  
FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

10950'-11000': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE  
CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5%  
FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

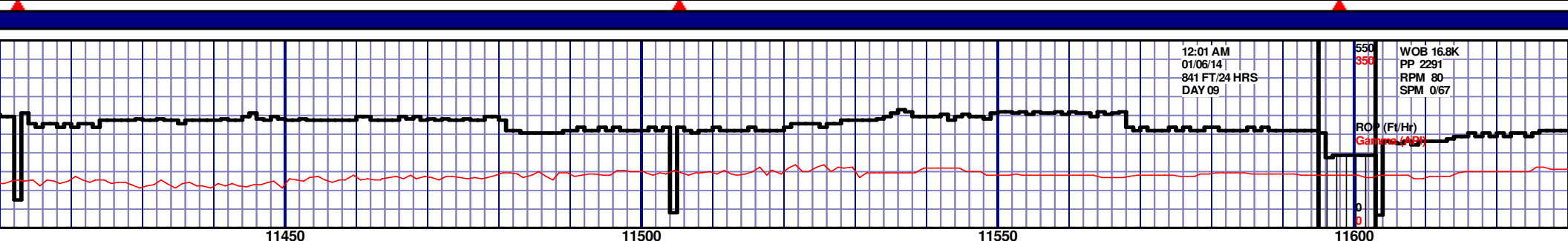
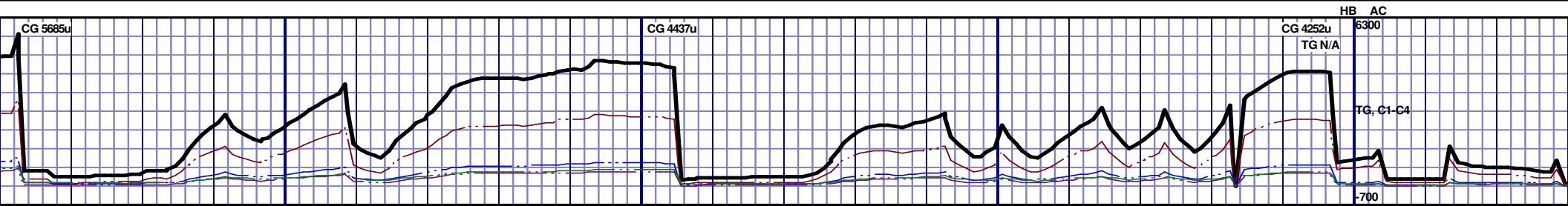




6450 TVD					6450 TVD				
11200'-11250': CHK: 75% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG					11250'-11300': CHK: 85% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				
11300'-11350': CHK: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG					11350'-11400': CHK: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				
11400'-11450': CHK: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG					11450'-11500': CHK: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				

MD 11259 TVD 6636.76  
INC 91.66 AZ 89.51  
VS 4849.9

MD 11352 TVD 6635.62  
INC 89.75 AZ 89.87  
VS 4942.88

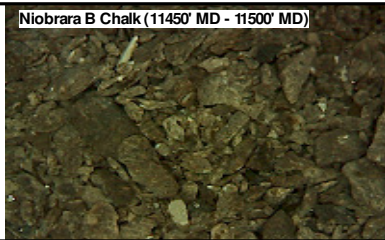


12:01 AM  
01/06/14  
841 FT/24 HRS  
DAY 09

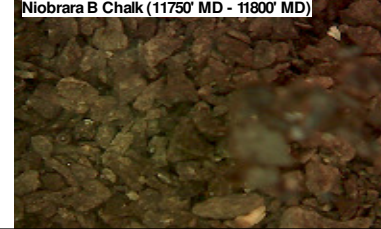
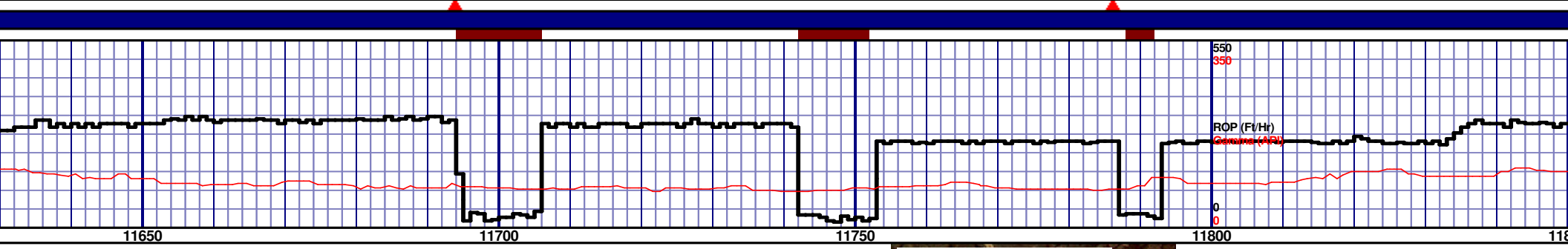
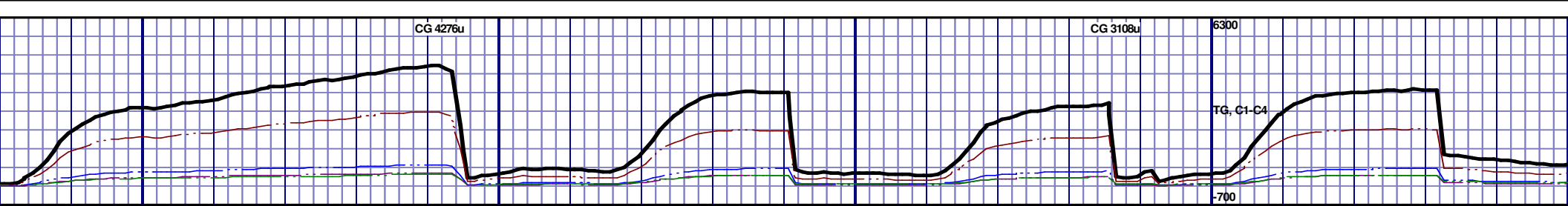
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PP 2291  
RPM 80  
SPM 067

RO (Ft/Hr)  
Gammex LAGX

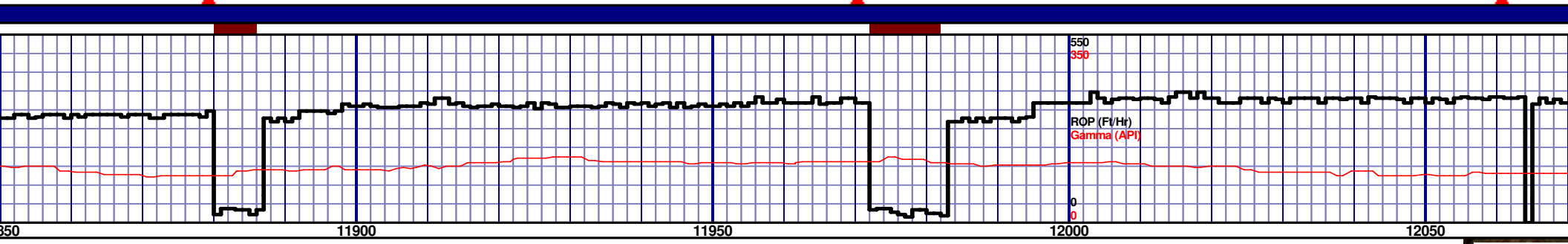
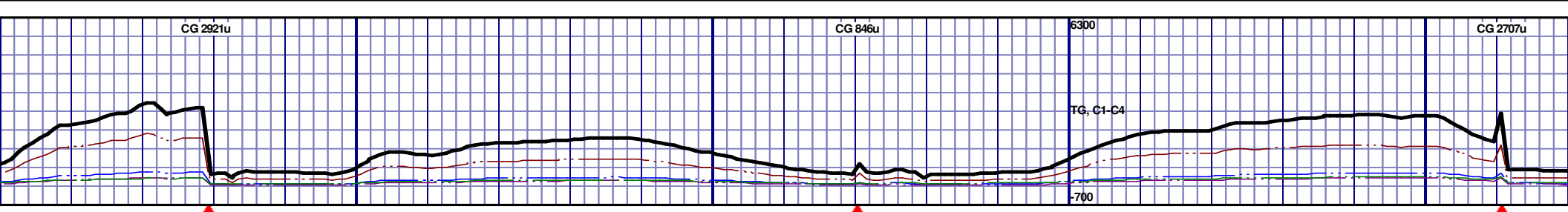
Niobrara B Chalk (11450' MD - 11500' MD)



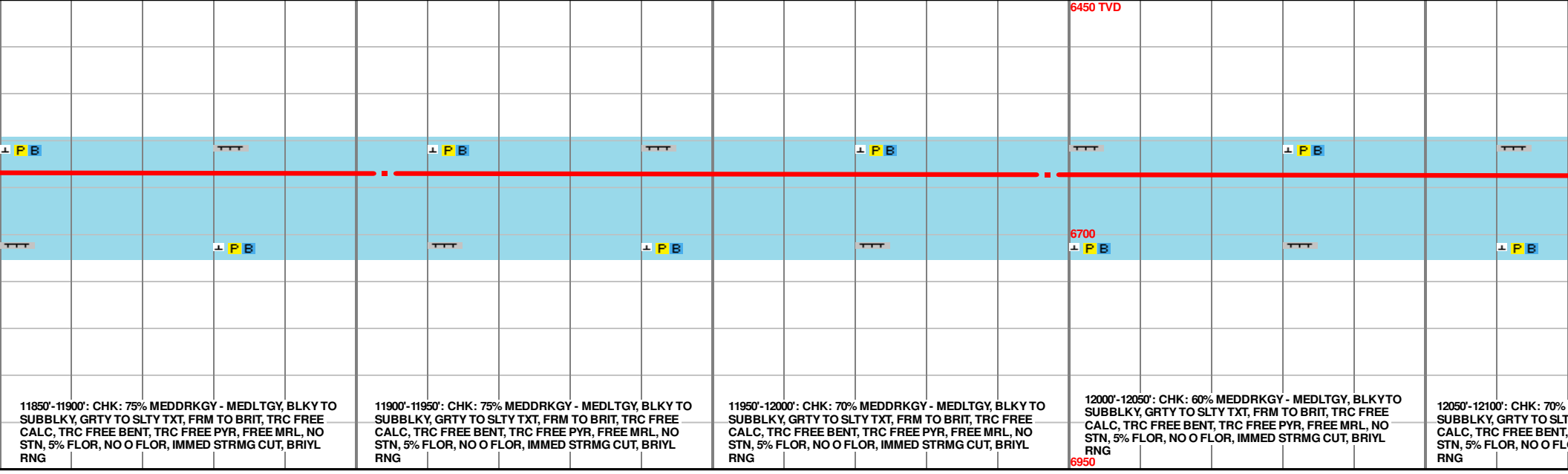
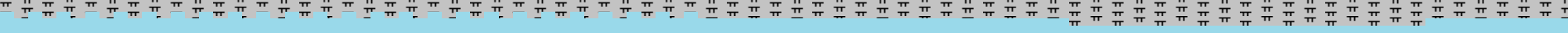
				6450 TVD			
				TOOH @ 10:45AM ON 1/5/14 @ 11596' MD TO DIAGNOSE MWD TOOL ISSUES. TIH @ 8:30PM ON 01/05/14. DRILLING AHEAD @ 6:00AM ON 1/6/14 W/ BIT #4 6.125" SMITH SDI513 UBPX S/N JH6567 IN @ 11599' MD.			
				6700			



<p>MEDLTGY, BLKY TO BRIT, TRC FREE R, FREE MRL, NO RMG CUT, BRIYL RNG</p>	<p>11600'-11650': CHK: 85% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>11700'-11750': CHK: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>11750'-11800': CHK: 80% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>11800'-11850': CHK: 75% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>
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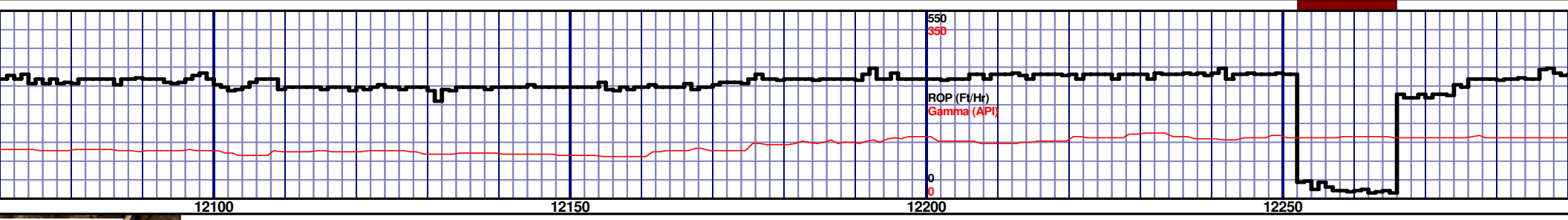
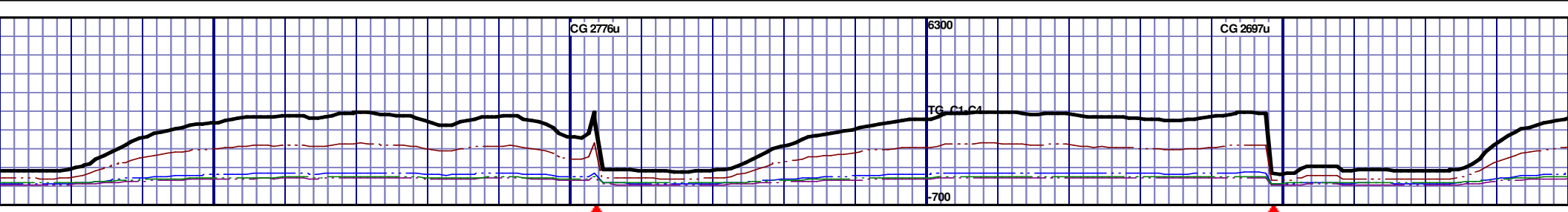


Niobrara B Chalk



MD 11904 TVD 6634.59  
INC 89.72 AZ 88.43  
VS 5494.72

MD 11997 TVD 6635.95  
INC 88.61 AZ 88.73  
VS 5587.67

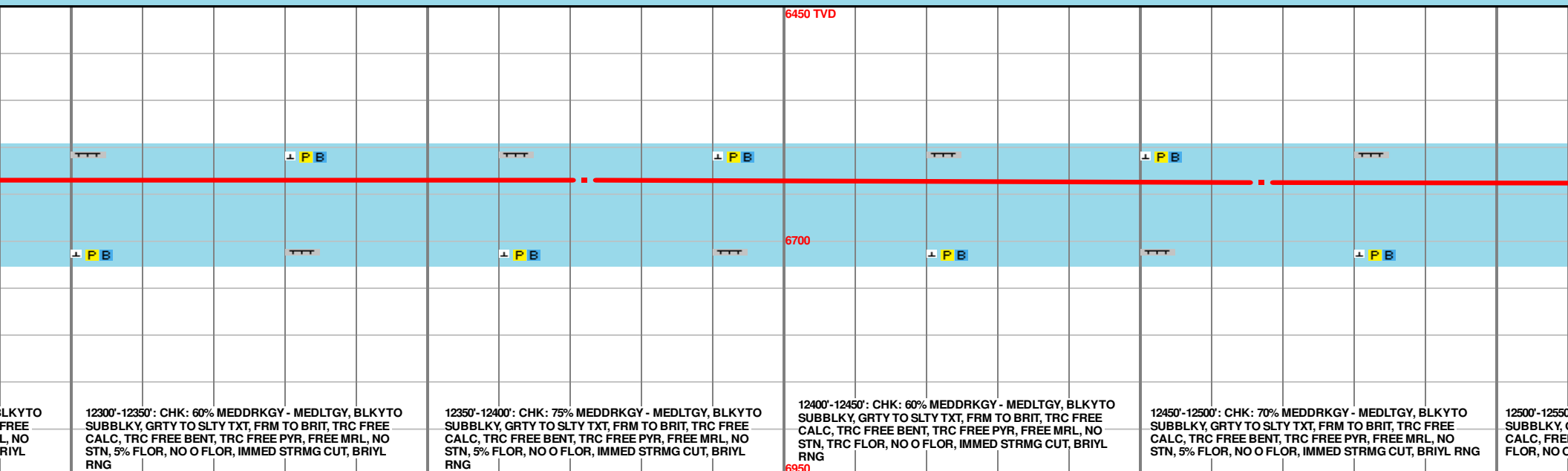
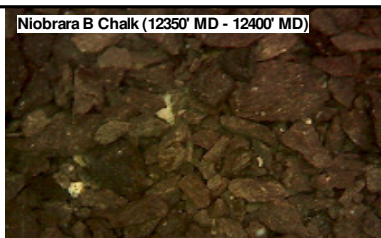
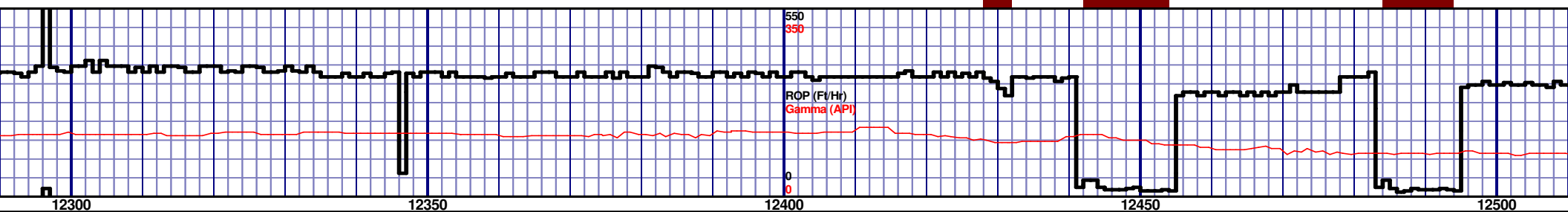
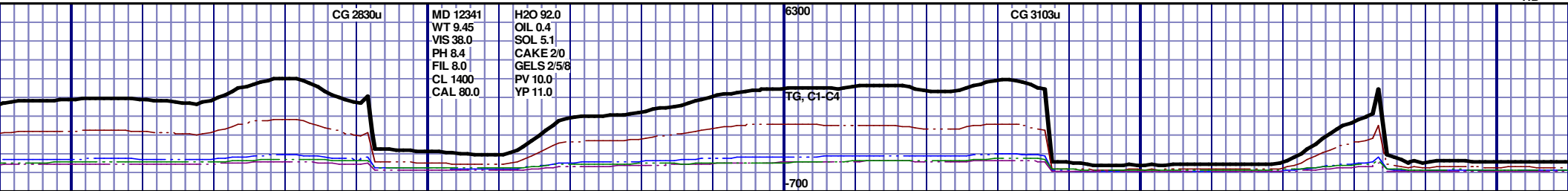


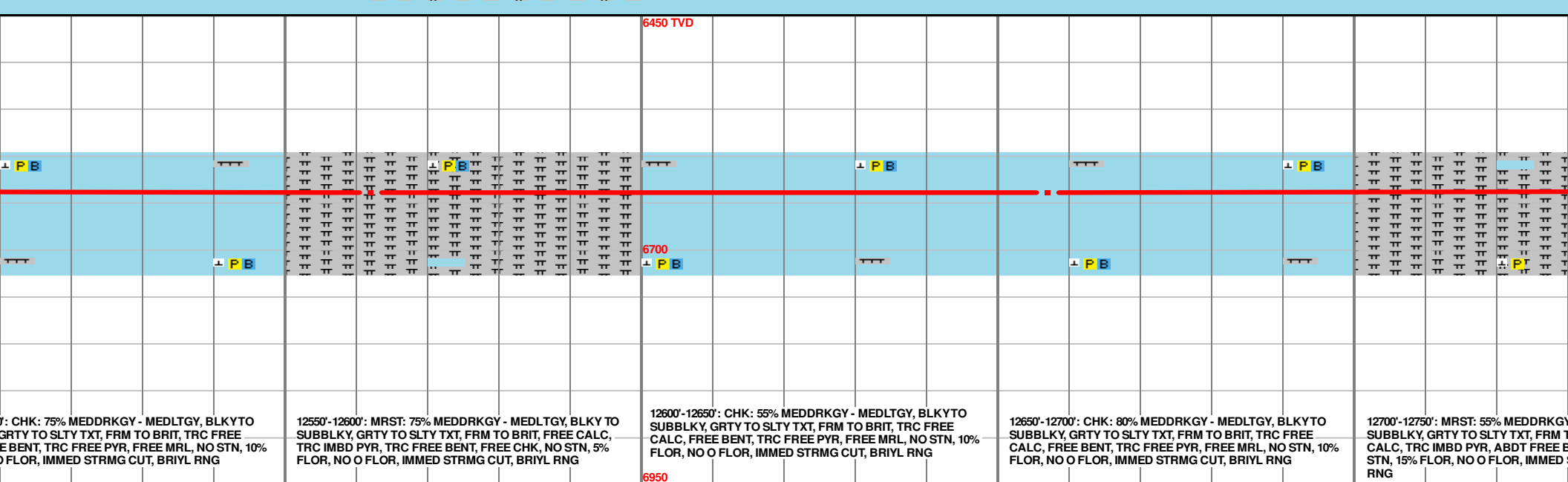
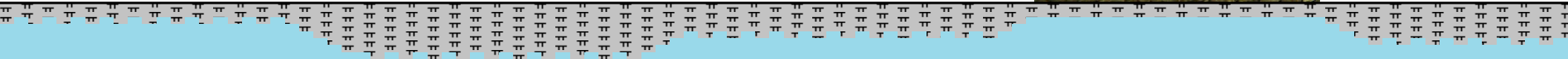
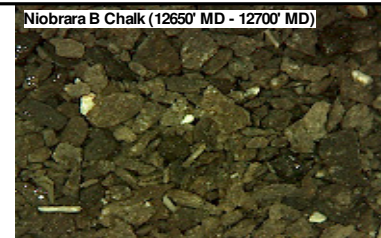
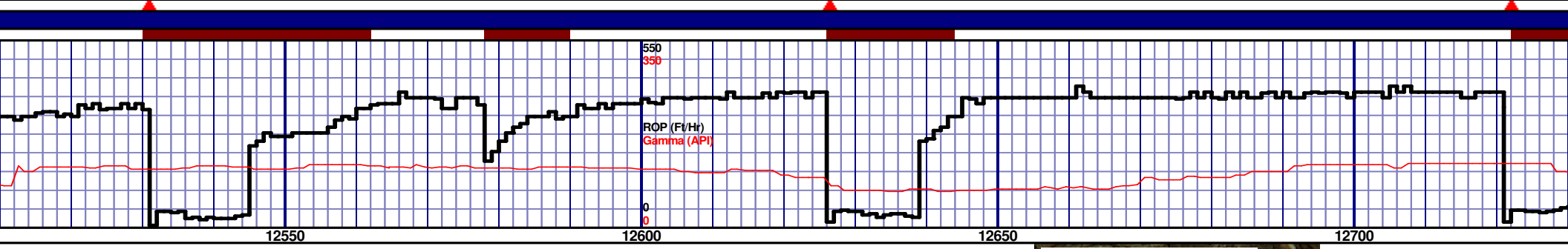
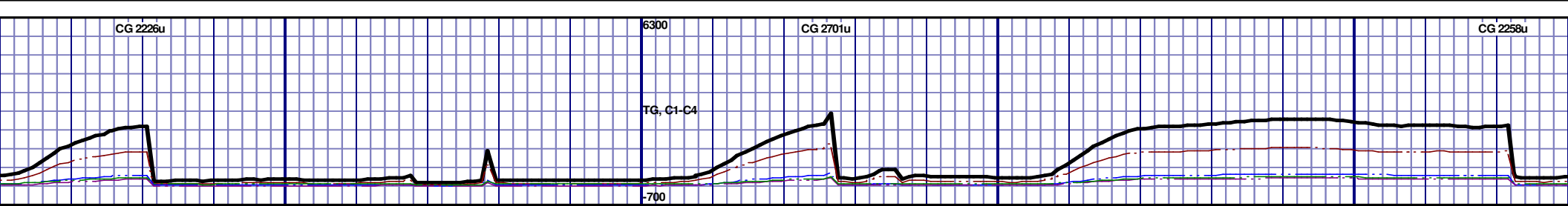
6450 TVD				6700				6950			
MEDDRKGY - MEDLTGY, BLKYTO Y TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG			
12100'-12150': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				12150'-12200': CHK: 85% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG				12200'-12250': CHK: 60% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG			
12250'-12300': CHK: 60% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG											

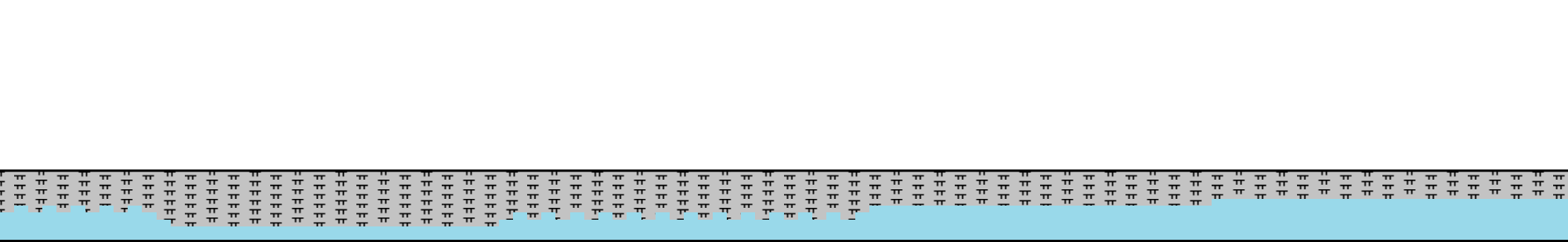
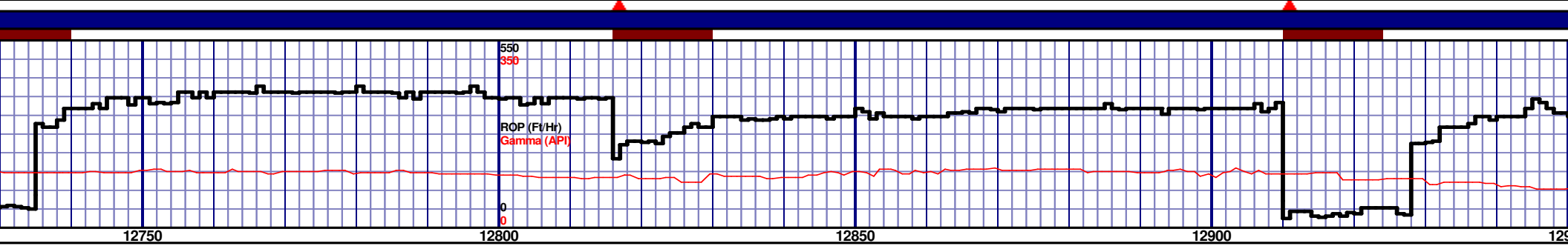
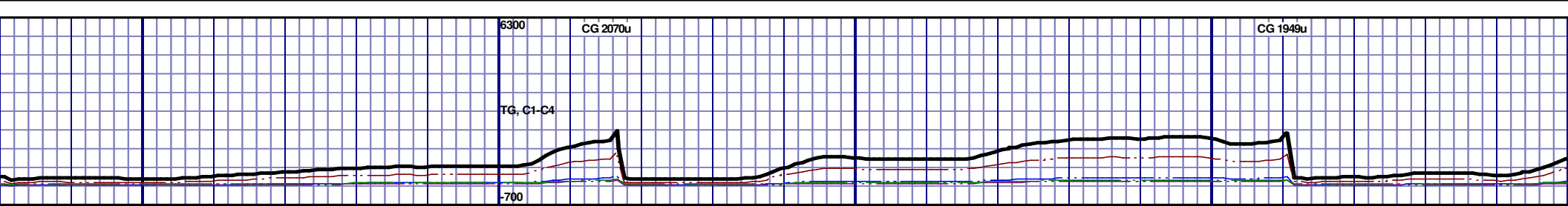
MD 12090 TVD 6637.28  
INC 89.75 AZ 88.3  
VS 5680.61

MD 12185 TVD 6636.31  
INC 91.42 AZ 89.36  
VS 5775.57

MD 12277 TVD 6636.31  
INC 90.09 AZ 87.6  
VS 5867.52





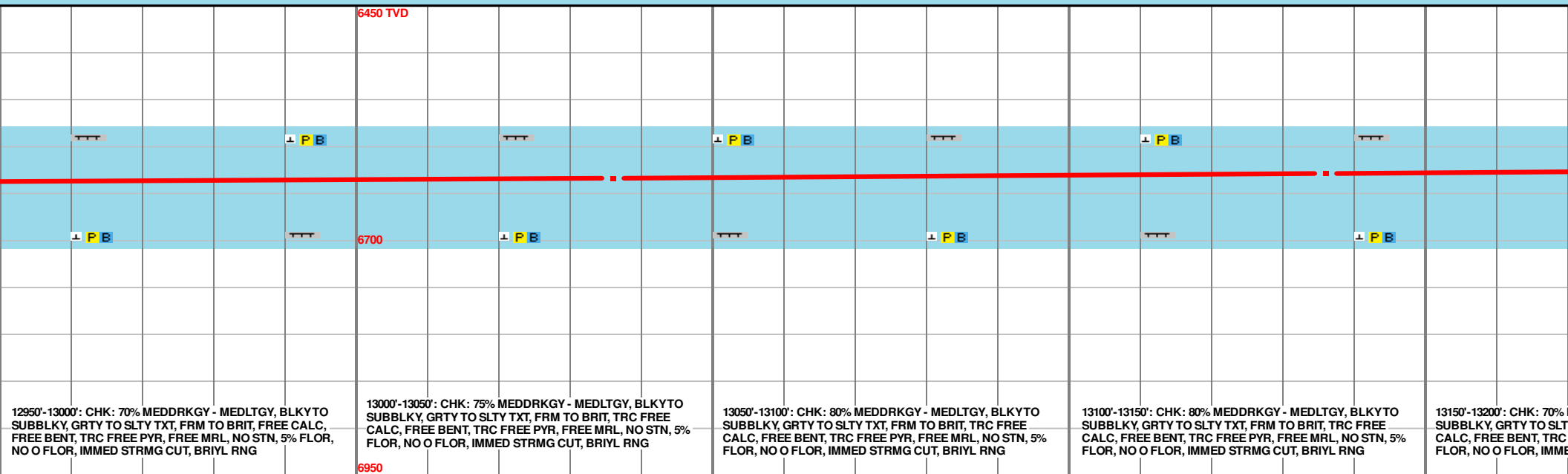
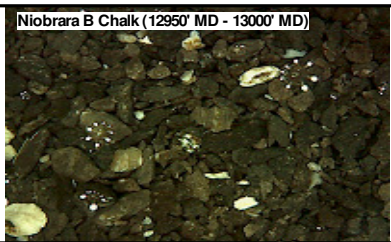
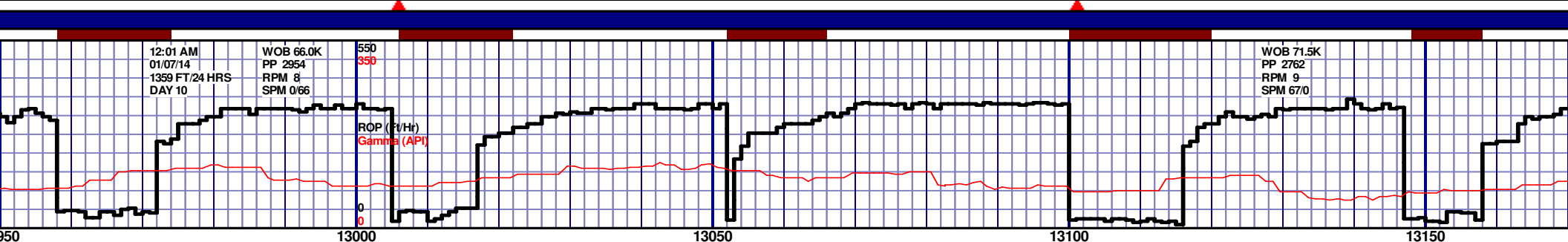
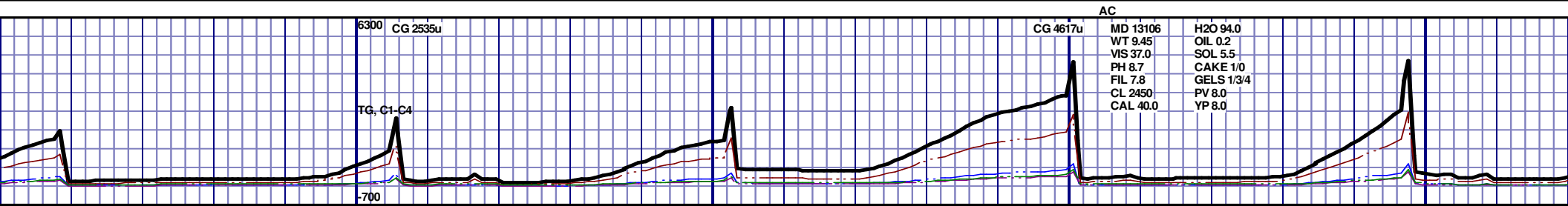


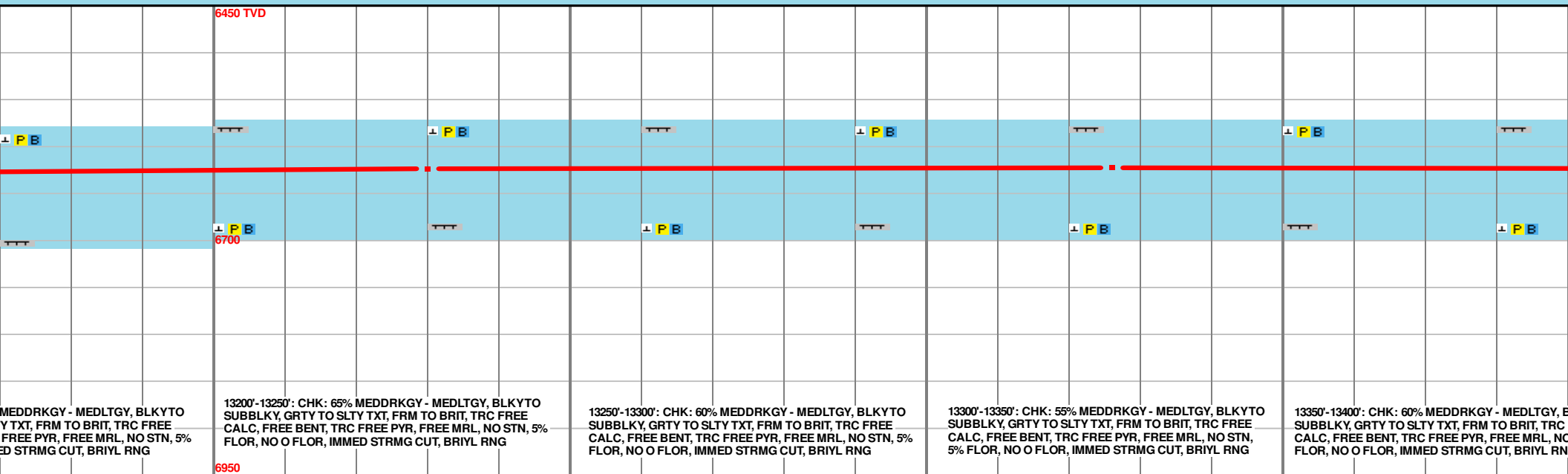
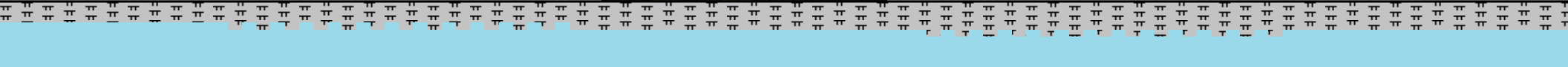
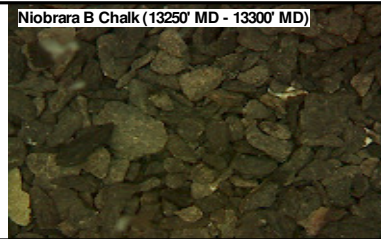
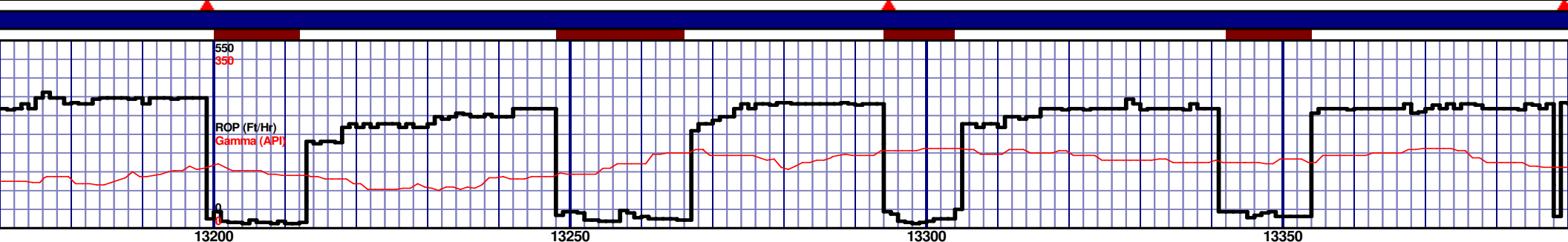
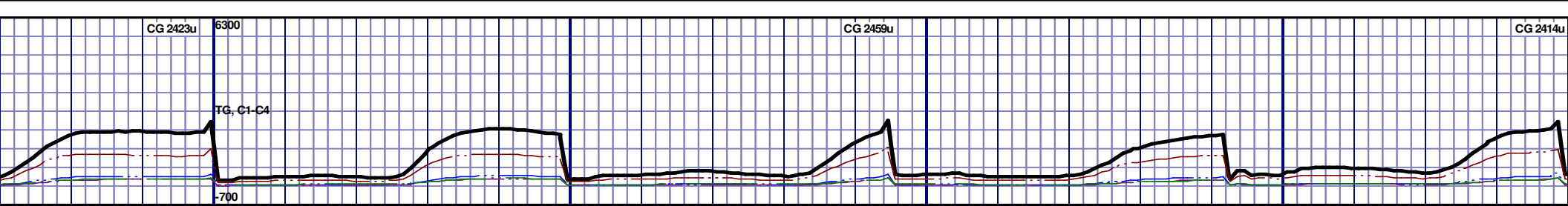
<p>12750'-12800': MRST: 80% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC IMBD PYR, FREE BENT, FREE CHK, NO STN, 15% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>12800'-12850': MRST: 65% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC IMBD PYR, FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>12850'-12900': MRST: 50% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC IMBD PYR, FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>12900'-12950': CHK: 60% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, ABDT FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 15% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG</p>
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MD 12752 TVD 6637.74  
INC 90.8 AZ 89.73  
VS 6341.55

MD 12847 TVD 6637.49  
INC 89.51 AZ 87.03  
VS 6436.49

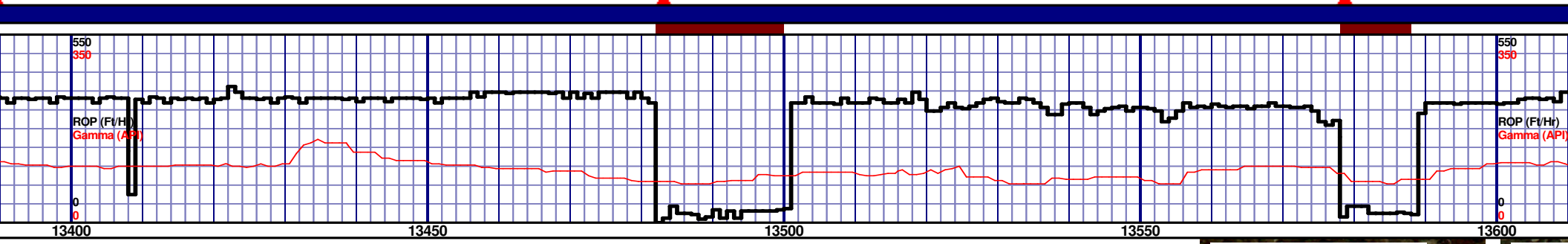
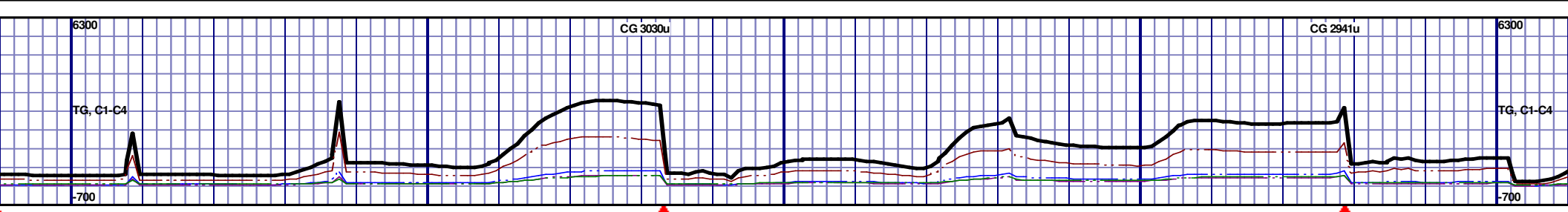
MD 12941 TVD 6637.24  
INC 90.71 AZ 89.73  
VS 6530.35



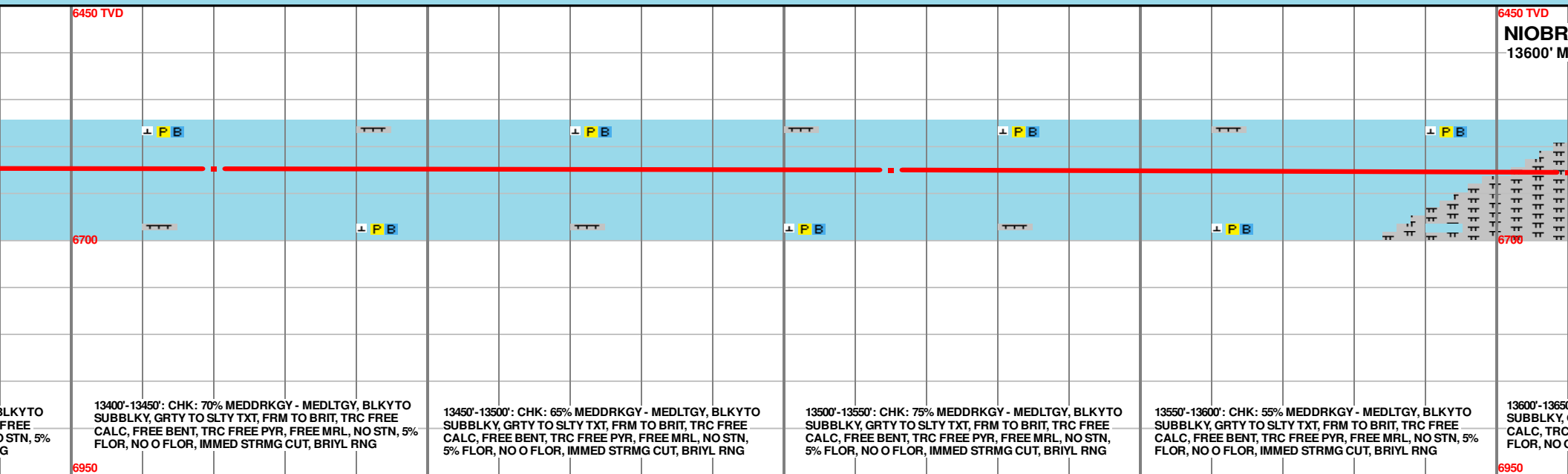


MD 13230 TVD 6624.03  
INC 92.32 AZ 91.69  
VS 6818.85

MD 13326 TVD 6623.04  
INC 88.86 AZ 91.18  
VS 6914.81



Niobrara B Chalk (13550' MD - 13600' MD)



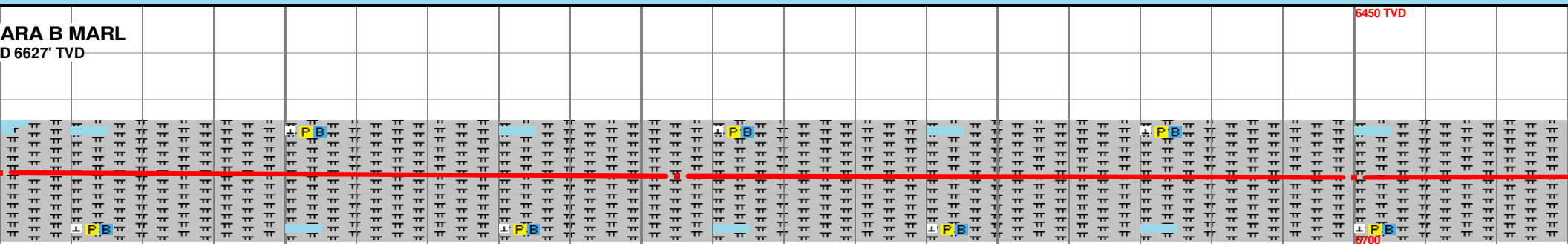
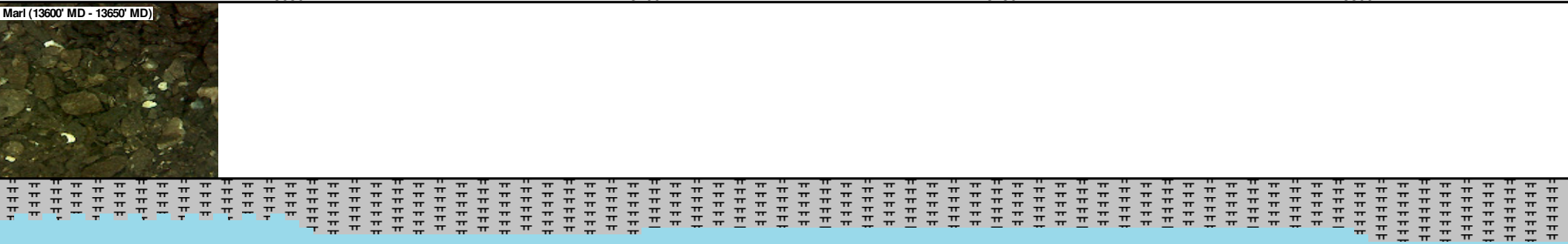
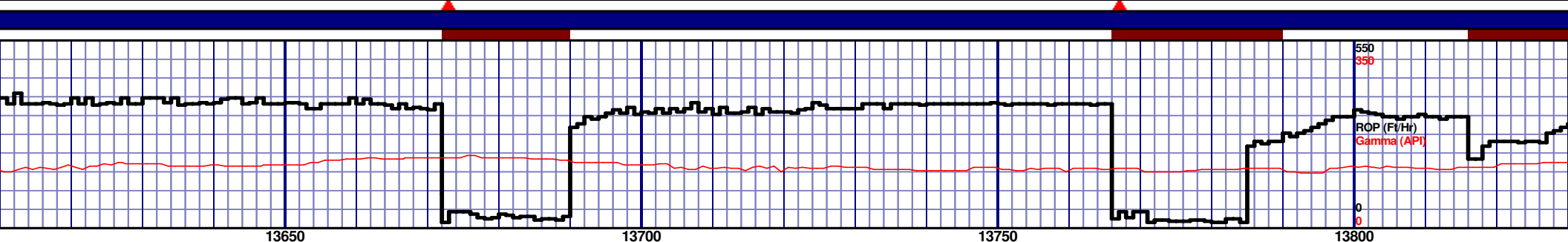
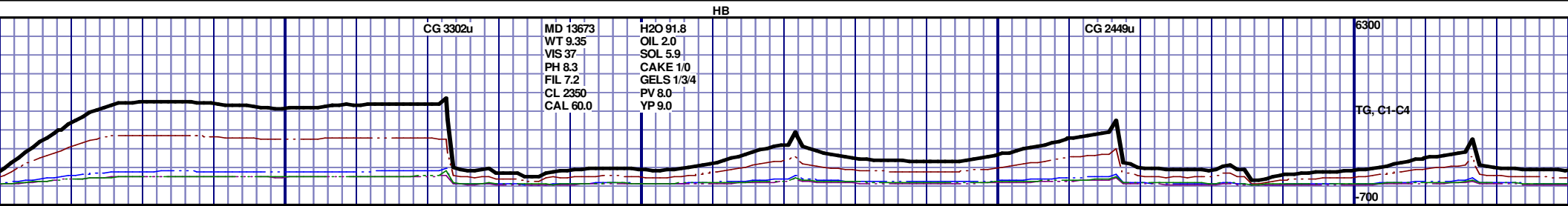
13400'-13450': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

13450'-13500': CHK: 65% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

13500'-13550': CHK: 75% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

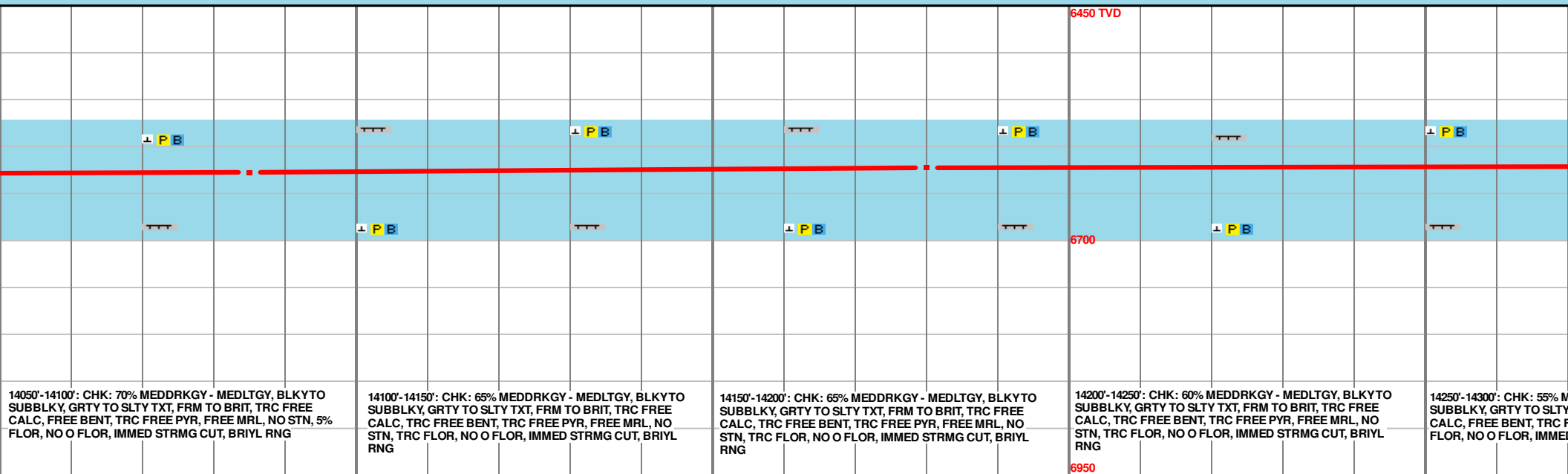
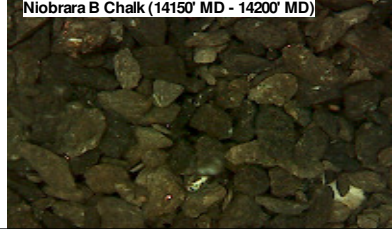
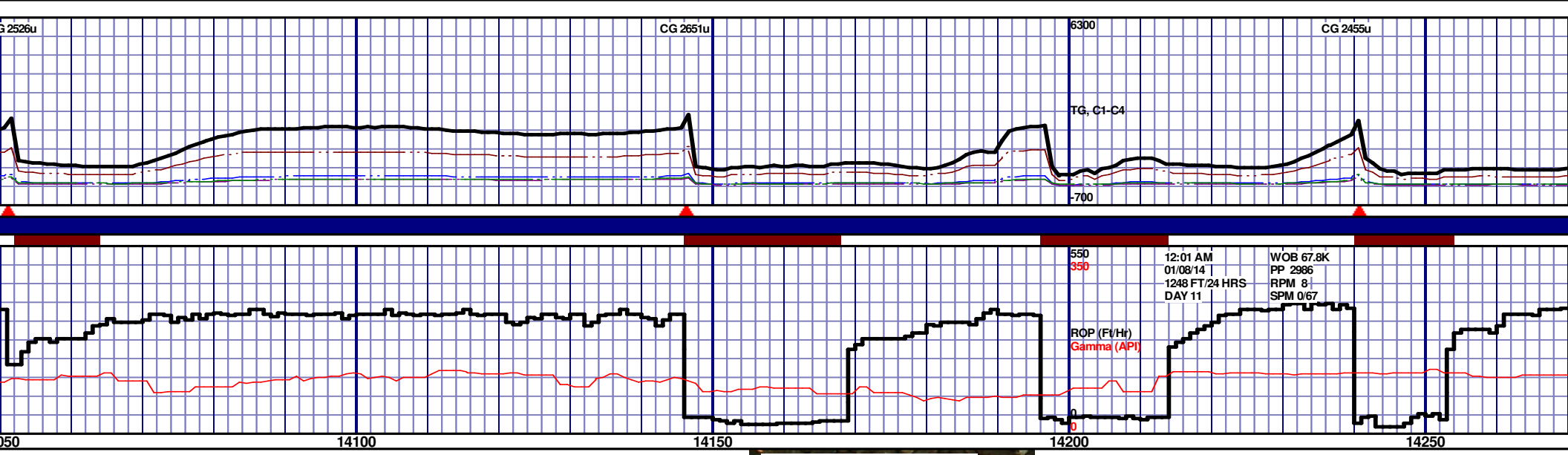
13550'-13600': CHK: 55% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

13600'-13650': CHK: 55% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG



0' - 13650': MRST: 55% MEDDRKGY - MEDLTGY, BLKY TO GRITY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC IMBD PYR, FREE BENT, FREE CHK, NO STN, 10% FLOR, IMMED STRMG CUT, BRIYL RNG	13650' - 13700': MRST: 80% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRITY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC IMBD PYR, FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG	13700' - 13750': MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRITY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC IMBD PYR, FREE BENT, FREE CHK, NO STN, 10% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG	13750' - 13800': MRST: 70% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRITY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC IMBD PYR, TRC FREE BENT, FREE CHK, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG	13800' - 13850': MRST: 90% MEDDRKGY - MEDLTGY, BLKY TO SUBBLKY, GRITY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC IMBD PYR, TRC FREE BENT, FREE CHK, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG
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14050'-14100': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

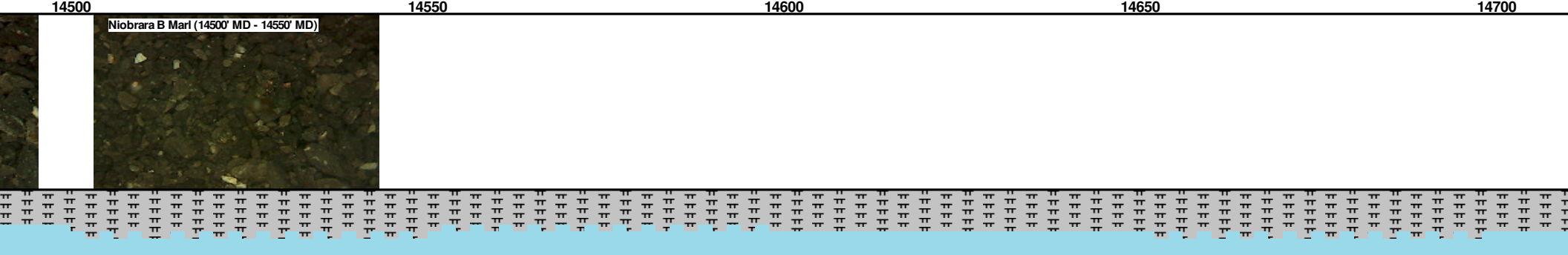
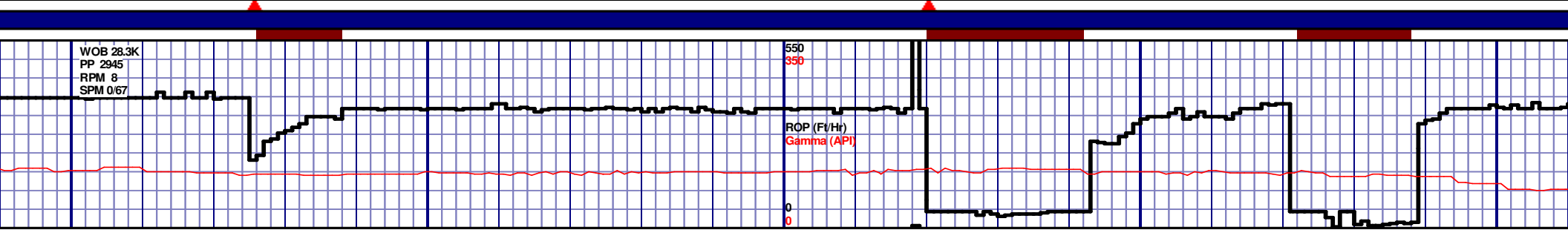
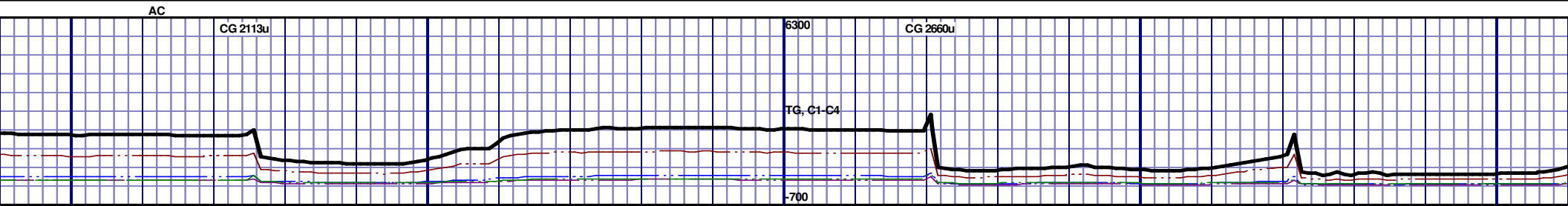
14100'-14150': CHK: 65% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, TRC FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

14150'-14200': CHK: 65% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, TRC FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

14200'-14250': CHK: 60% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, TRC FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

14250'-14300': CHK: 55% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, TRC FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG



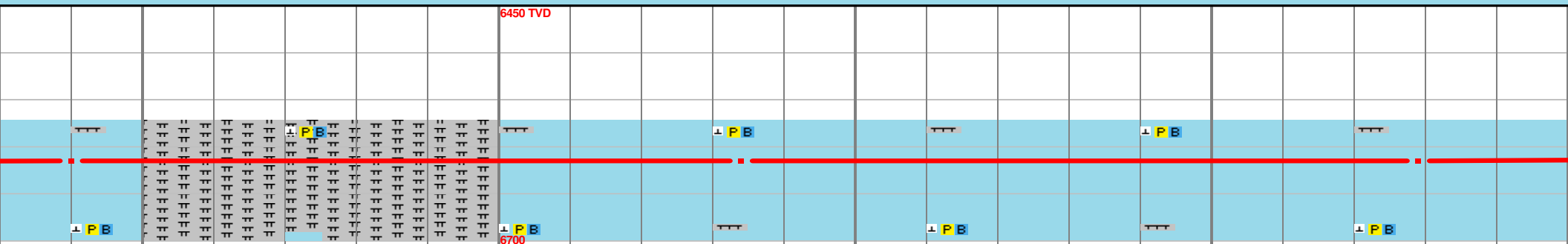
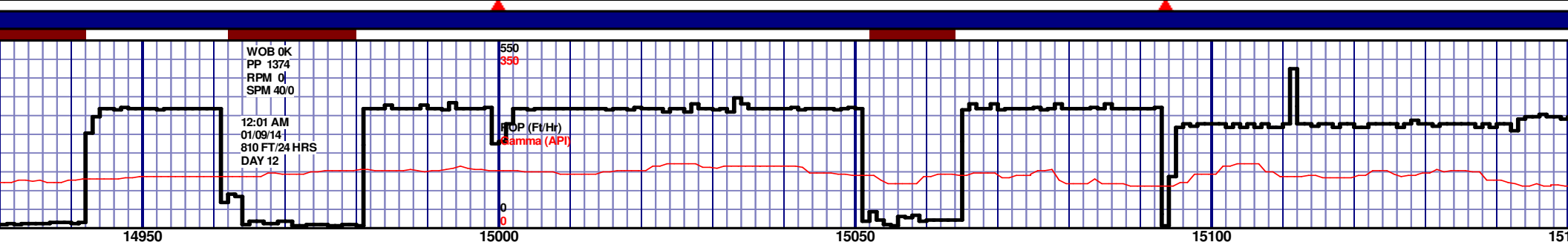


NIOBRARA B MARL 14500' MD 6622' TVD										6450 TVD																																																	
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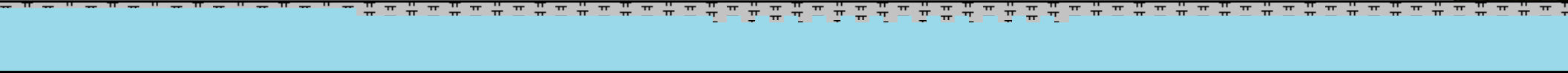
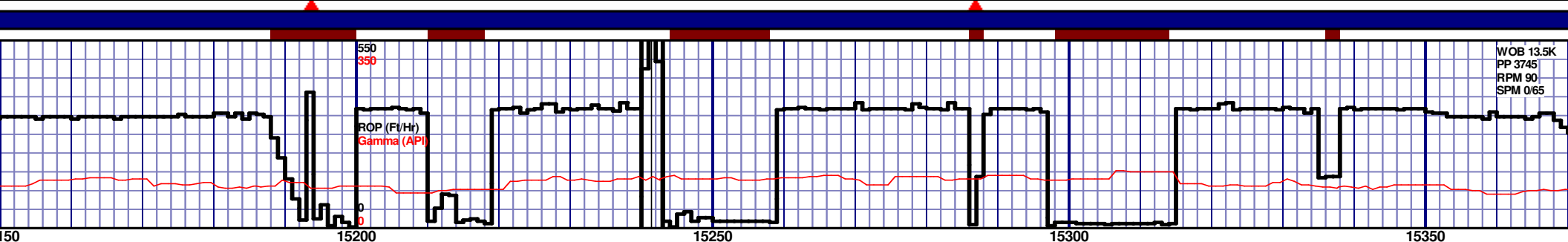
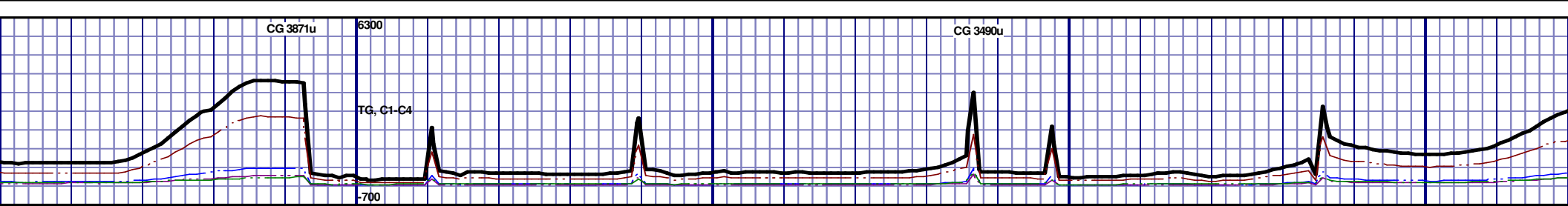
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INC 90.03 AZ 85.73  
VS 8148.12

MD 14655 TVD 6622.47  
INC 90.49 AZ 84.77  
VS 8242.75

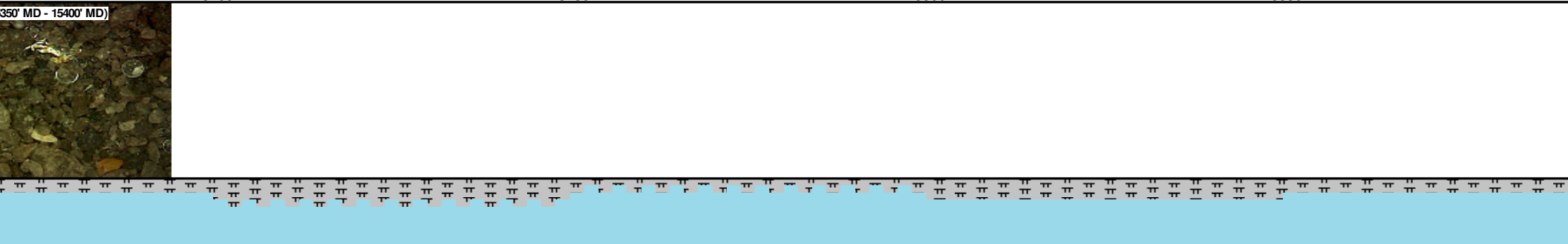
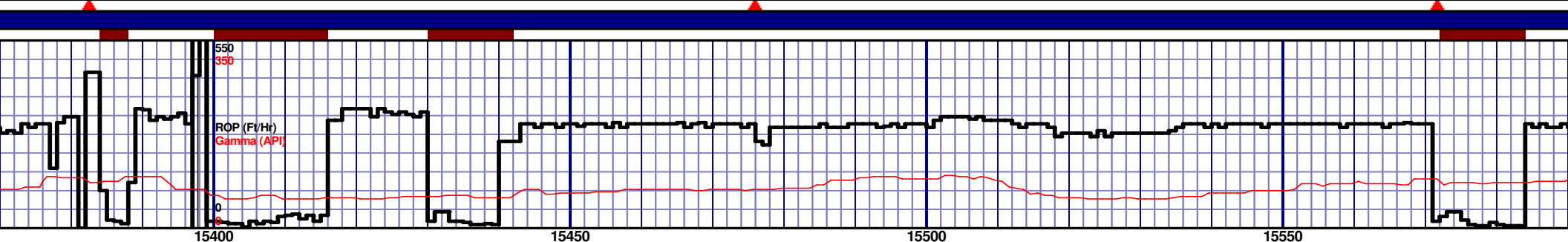
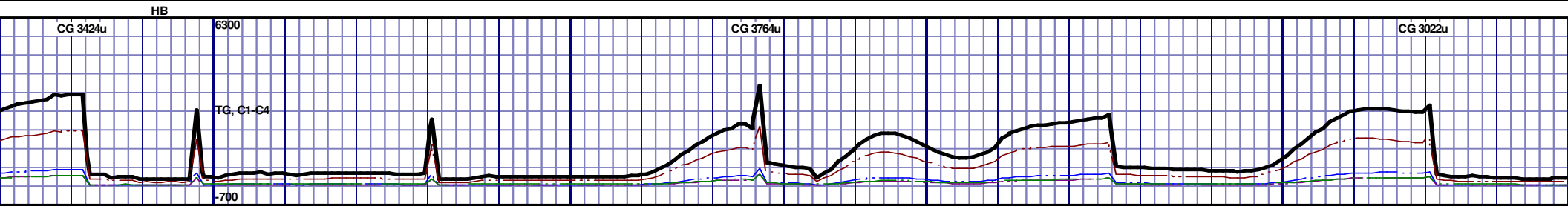




15100'-15150': CHK: 90% MEDDRKGY - MEDLTGY, BLKYTO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE  
CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO  
STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG



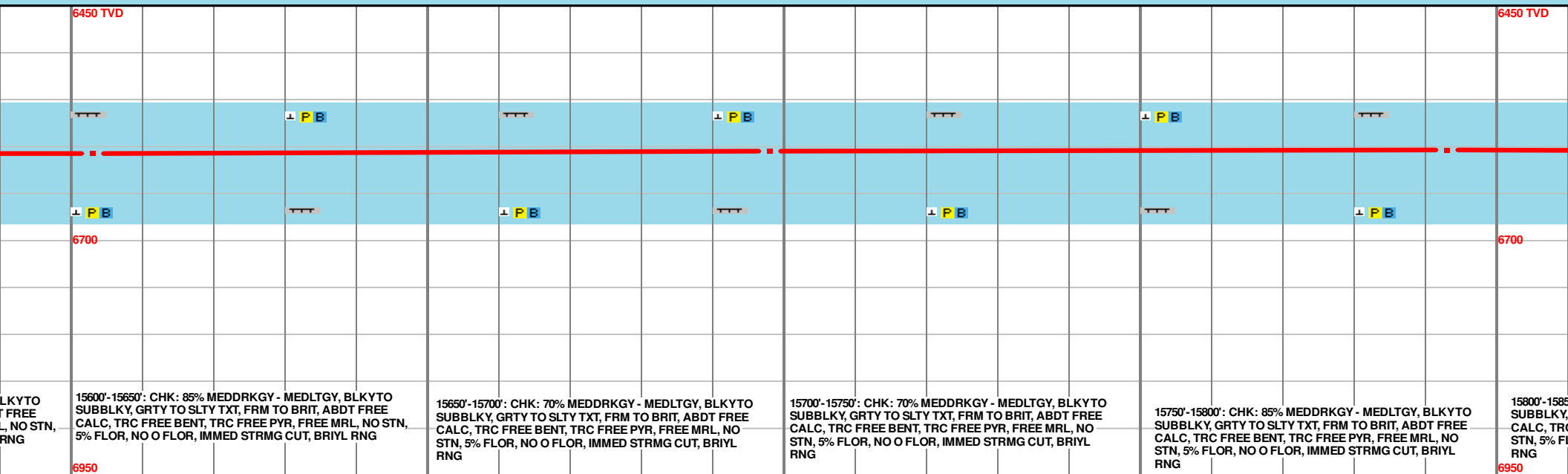
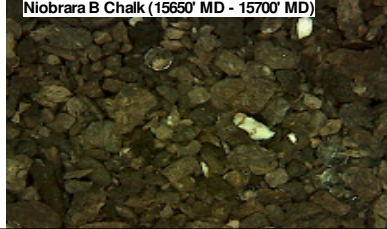
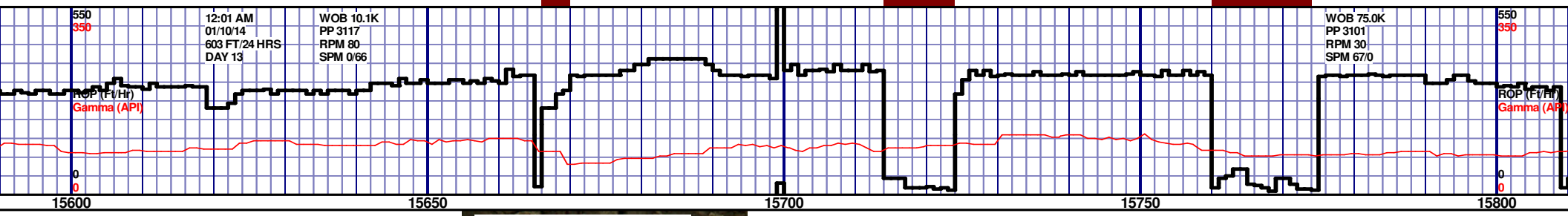
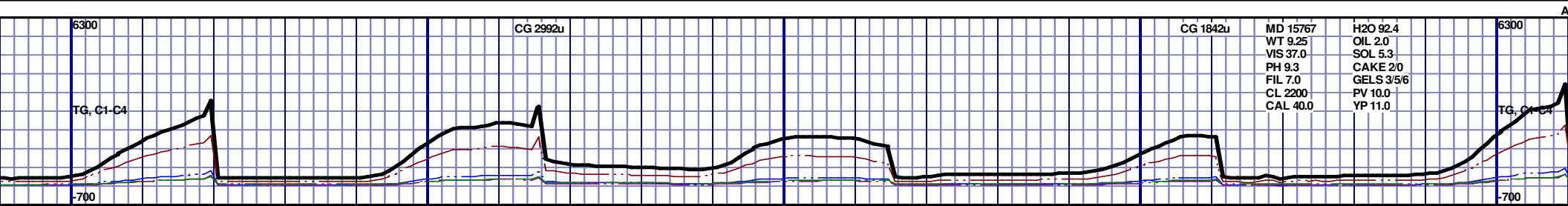
15150'-15200': CHK: 90% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		15200'-15250': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		15250'-15300': CHK: 75% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		15300'-15350': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		15350'-15400': CHK: 80% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG	
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6450 TVD															
P B		P B		P B		P B		P B		P B		P B		P B	
P B		P B		P B		P B		P B		P B		P B		P B	
6700															
15400'-15450': CHK: 65% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		15450'-15500': CHK: 85% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		15500'-15550': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG		15550'-15600': CHK: 80% MEDDRKGY - MEDLTGY, B SUBBLKY, GR TY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG									
6950															

MD 15414 TVD 6607.59  
INC 90.46 AZ 92.14  
VS 9001

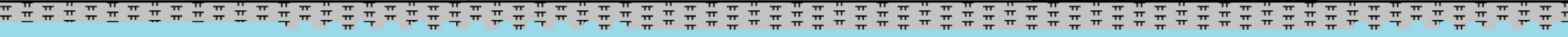
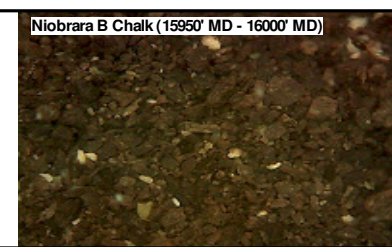
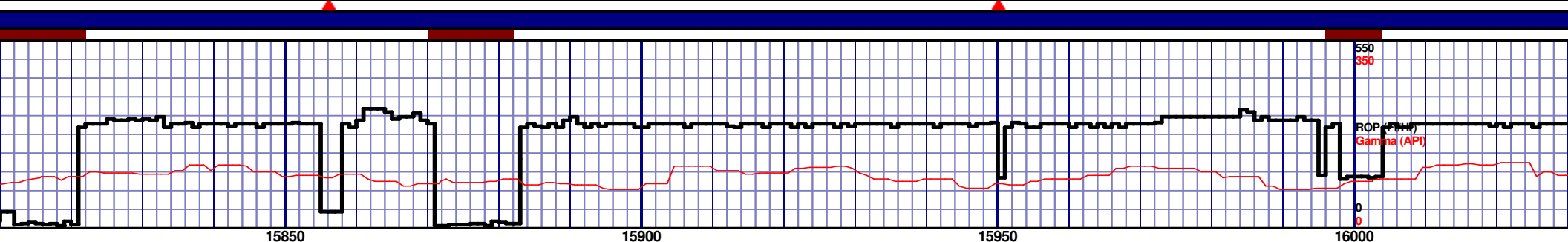
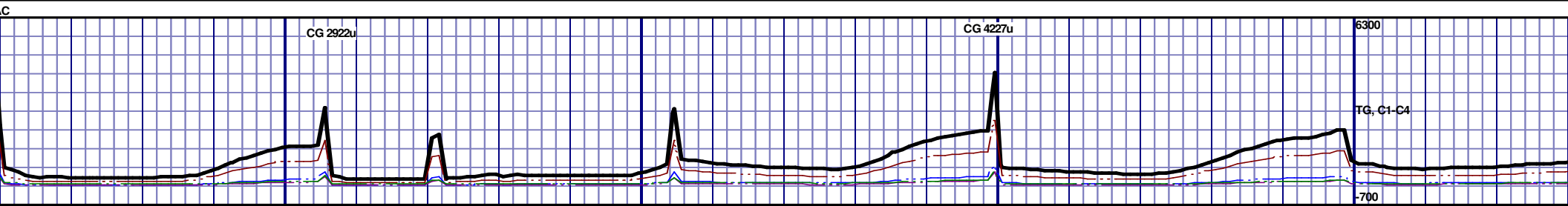
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INC 90.18 AZ 91.14  
VS 9094.97



MD 15603 TVD 6607.15  
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VS 9189.96

MD 15698 TVD 6605.59  
INC 92.16 AZ 90.73  
VS 9284.94

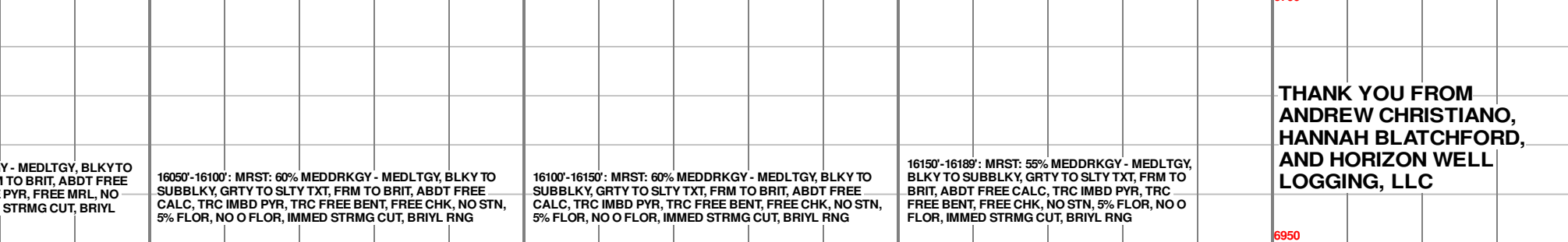
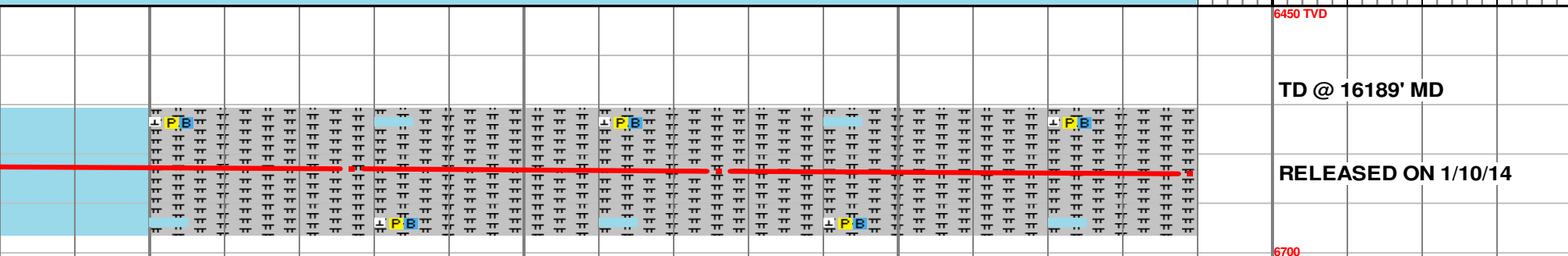
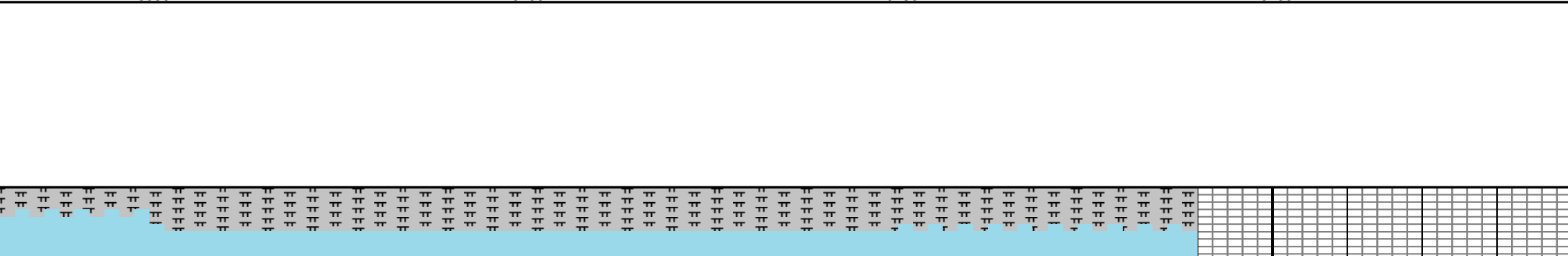
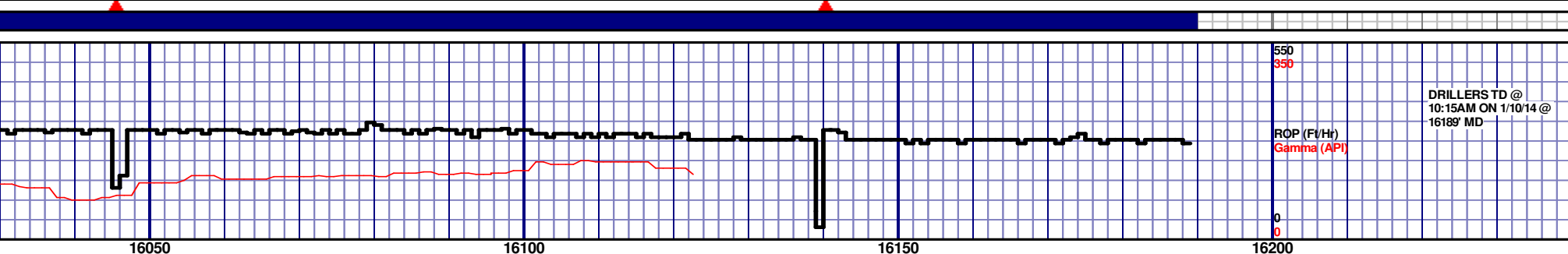
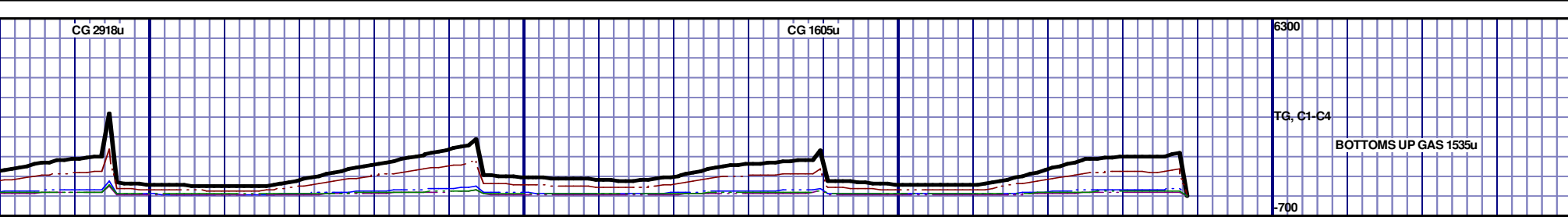
MD 15793 TVD 6603.77  
INC 90.03 AZ 90.74  
VS 9379.92



																				6450 TVD																													
15800'-15850': CHK: 70% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG										15850'-15900': CHK: 65% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG										15900'-15950': CHK: 60% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG										15950'-16000': CHK: 60% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG										16000'-16050': CHK: 65% MEDDRKGY - MEDLTGY, BLKYTO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABDT FREE CALC, TRC FREE BENT, TRC FREE PYR, FREE MRL, NO STN, 5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG									
																																								6700									
																																								6950									

MD 15887 TVD 6606.33  
INC 86.85 AZ 89.78  
VS 9473.87

MD 15982 TVD 6611.51  
INC 87.34 AZ 88.49  
VS 9568.73



Y - MEDTGY, BLKY TO  
1 TO BRIT, ABTD FREE  
PYR, FREE MRL, NO  
STRMG CUT, BRIYL

16050'-16100': MRST: 60% MEDDRKGY - MEDTGY, BLKY TO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABTD FREE  
CALC, TRC IMBD PYR, TRC FREE BENT, FREE CHK, NO STN,  
5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

16100'-16150': MRST: 60% MEDDRKGY - MEDTGY, BLKY TO  
SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, ABTD FREE  
CALC, TRC IMBD PYR, TRC FREE BENT, FREE CHK, NO STN,  
5% FLOR, NO O FLOR, IMMED STRMG CUT, BRIYL RNG

16150'-16189': MRST: 55% MEDDRKGY - MEDTGY,  
BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO  
BRIT, ABTD FREE CALC, TRC IMBD PYR, TRC  
FREE BENT, FREE CHK, NO STN, 5% FLOR, NO O  
FLOR, IMMED STRMG CUT, BRIYL RNG

6450 TVD

TD @ 16189' MD

RELEASED ON 1/10/14

6700

THANK YOU FROM  
ANDREW CHRISTIANO,  
HANNAH BLATCHFORD,  
AND HORIZON WELL  
LOGGING, LLC

6950

MD 16077 TVD 6615.4  
INC 87.53 AZ 86.63  
VS 9663.52

MD 16126 TVD 6617.44  
INC 87.69 AZ 86.1  
VS 9712.36

PTB MD 16189 TVD 6619.98  
INC 87.69 AZ 86.1  
VS 9775.14