



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

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WWW.HZMUD.COM/25

Customer Information

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

Geologist: Renee Clackler
Noble Energy Inc.

Mud Logging Details

Logger: Ross Apodaca &
Zack St.Clair

Log Interval: 5600' MD to 10142' MD

Start Date: September 13, 2014

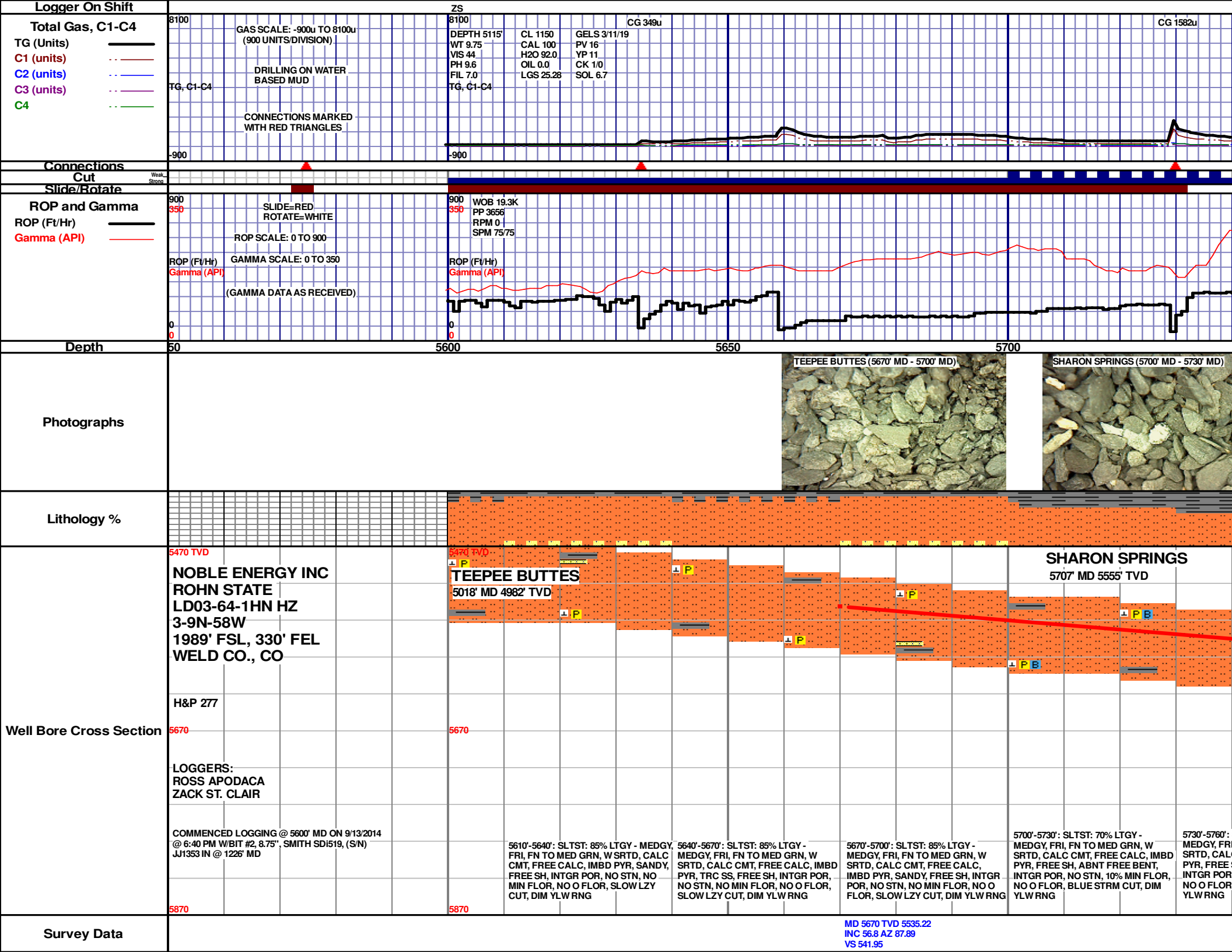
Release Date: September 18, 2014

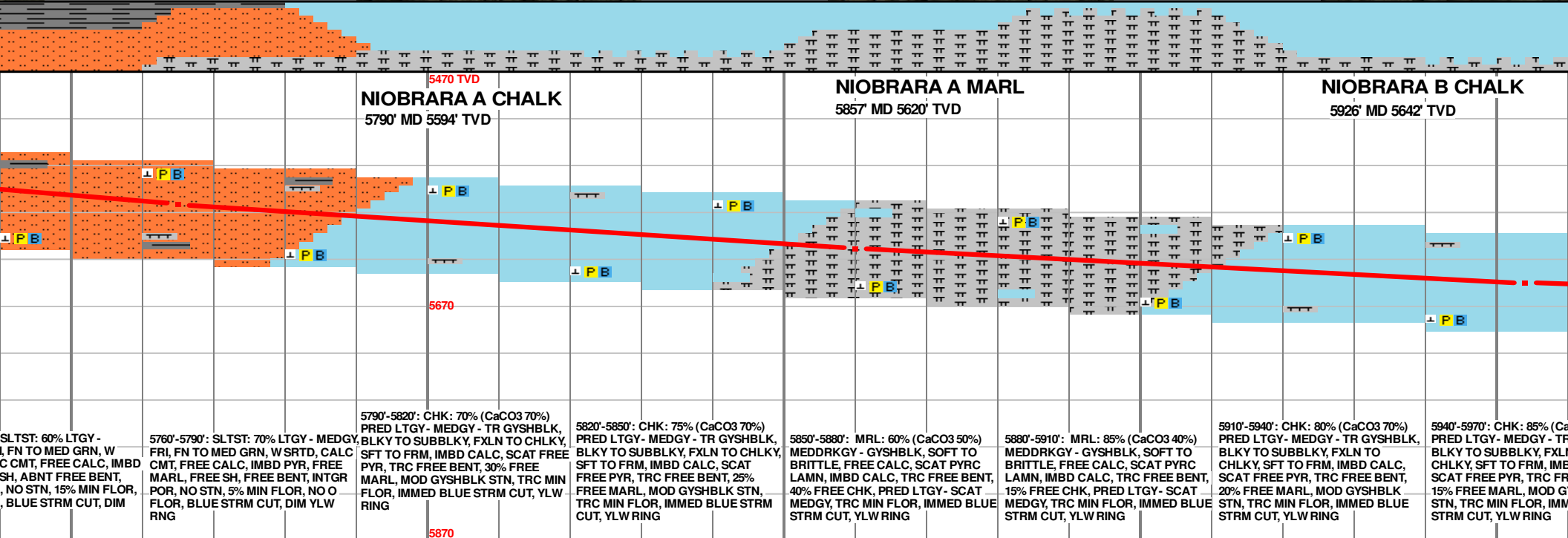
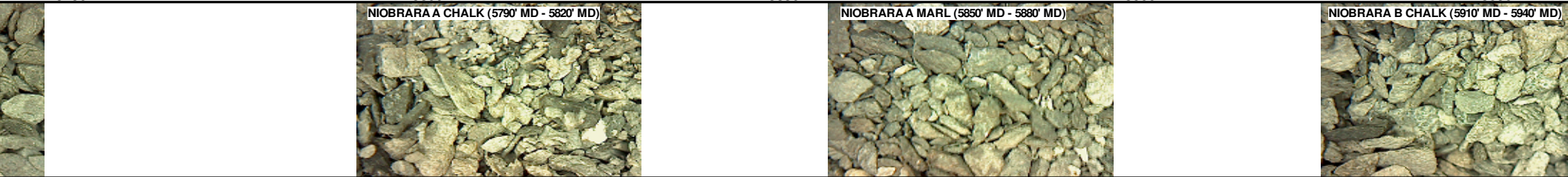
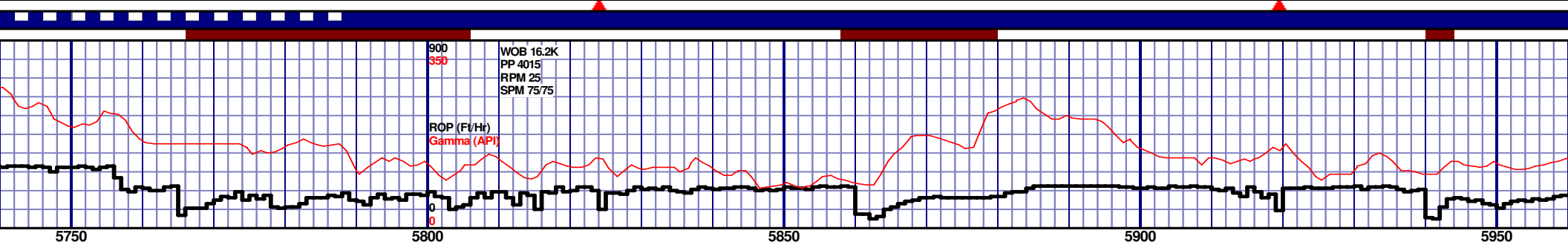
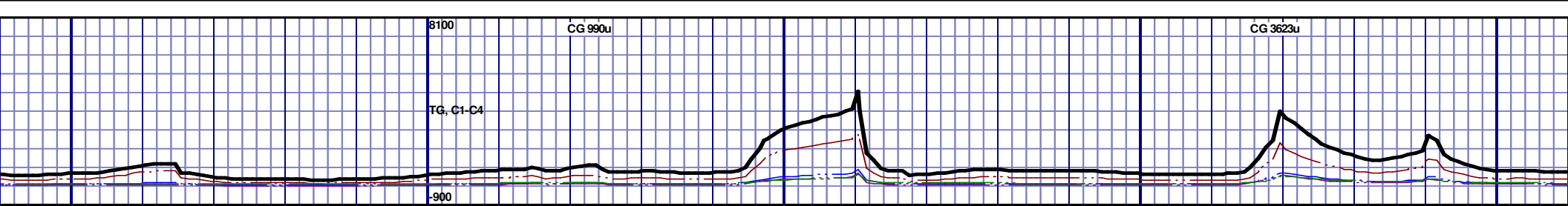
Well Information

Well Name: Rohn State
LD03-64-1HN HZ
Location: 3-9N-58W
1989' FSL, 330' FEL

County: Weld
State: Colorado

Drilling Rig: H&P 277
Total Depth: 10142' MD
TD Date: September 18, 2014
Formation: Niobrara B Chalk
KB Elevation: 4727'
GR Elevation: 4703'
API Number: 05-123-37462-0000

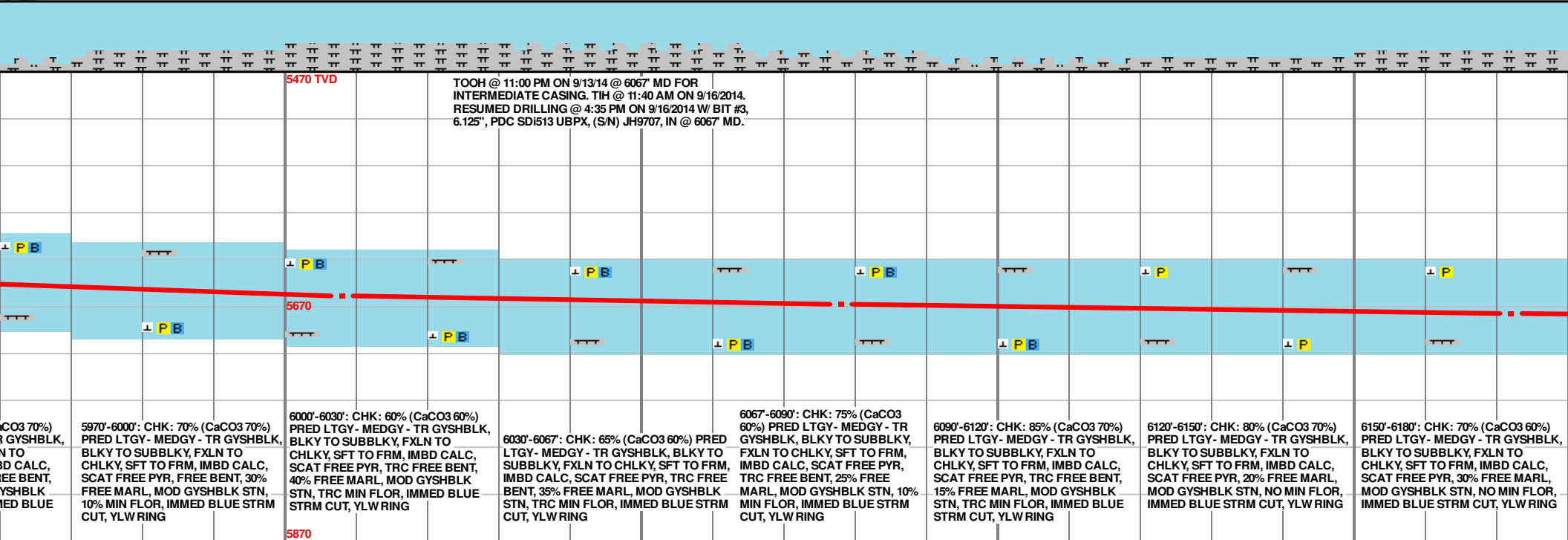
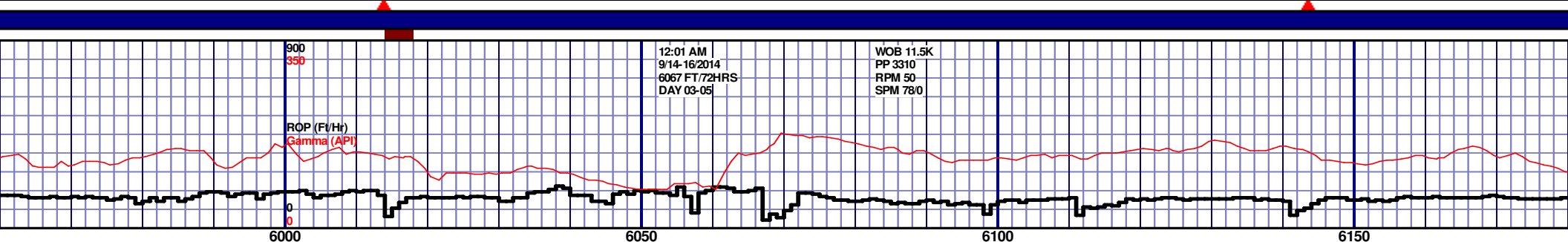
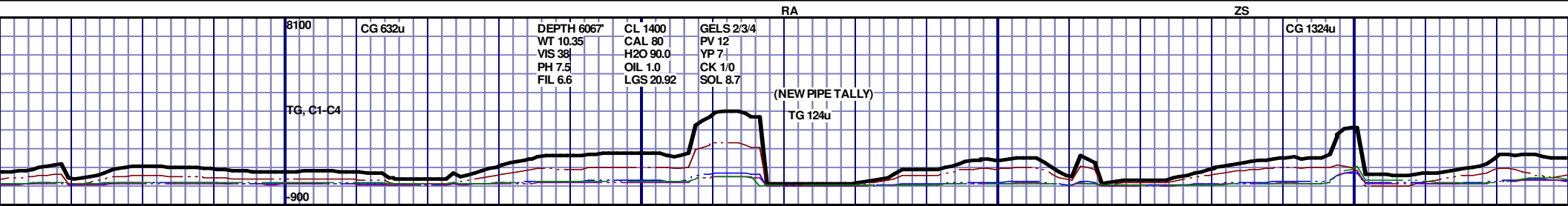


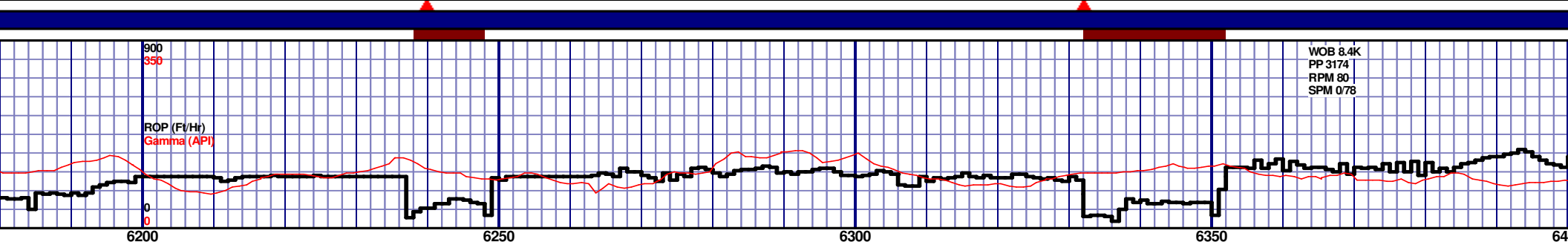
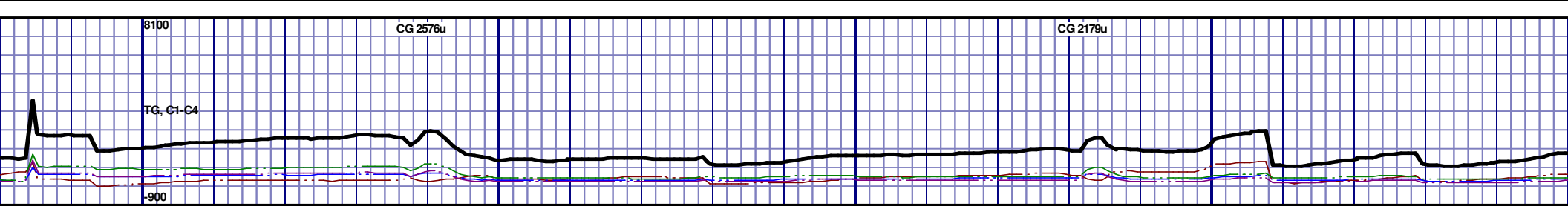


MD 5765 TVD 5582.57
INC 63.37 AZ 87.59
VS 623.96

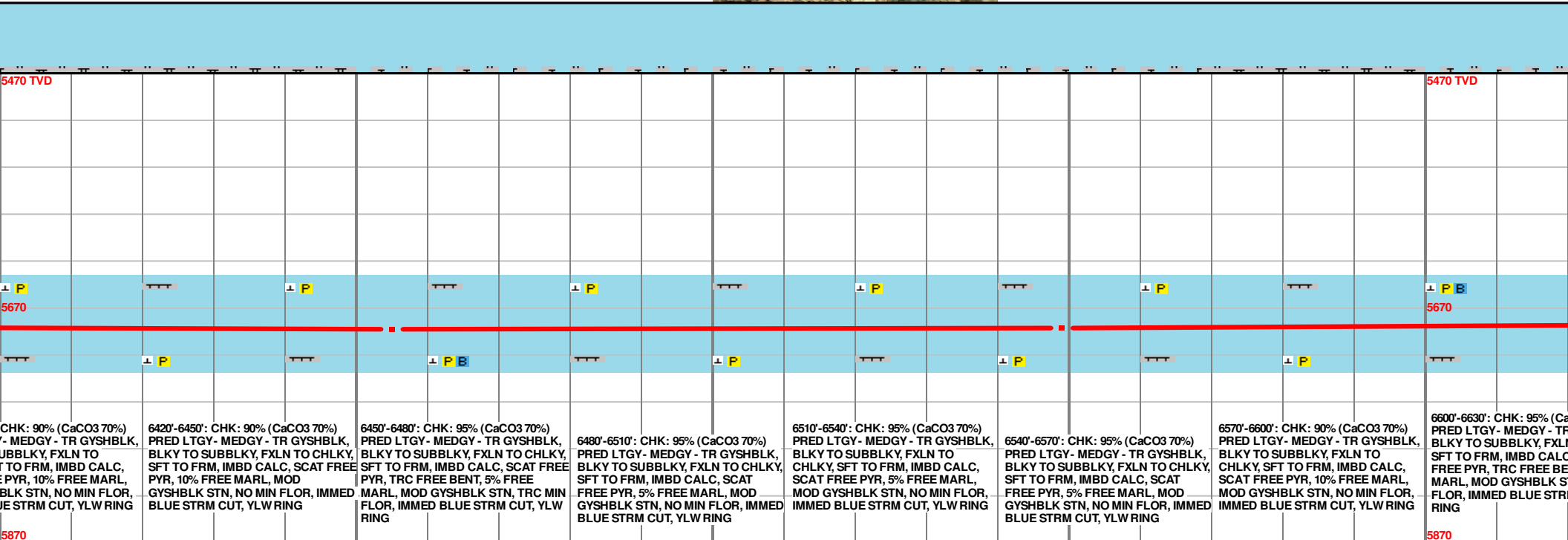
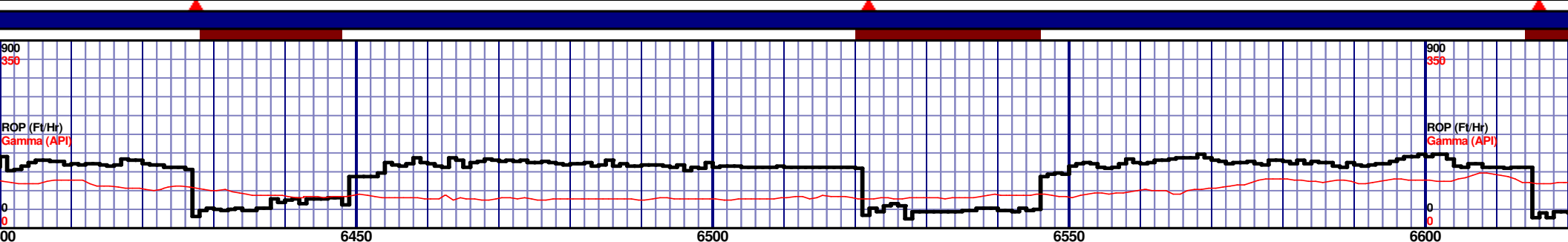
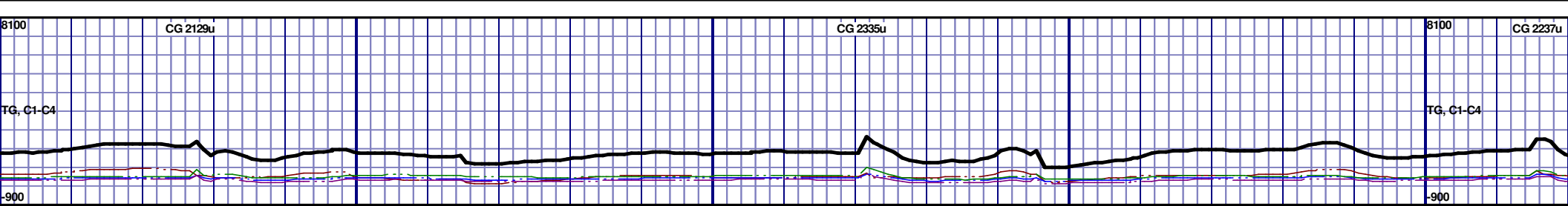
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INC 68.67 AZ 87.21
VS 710.4

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INC 75.37 AZ 87.21
VS 799.4



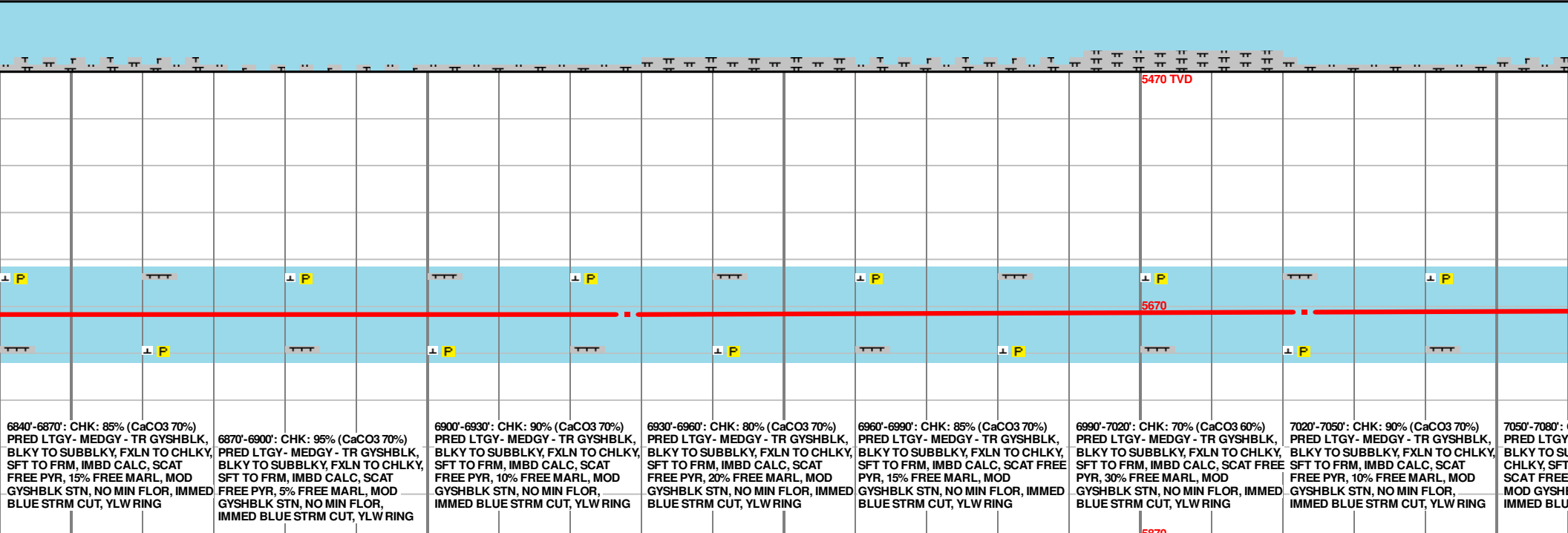
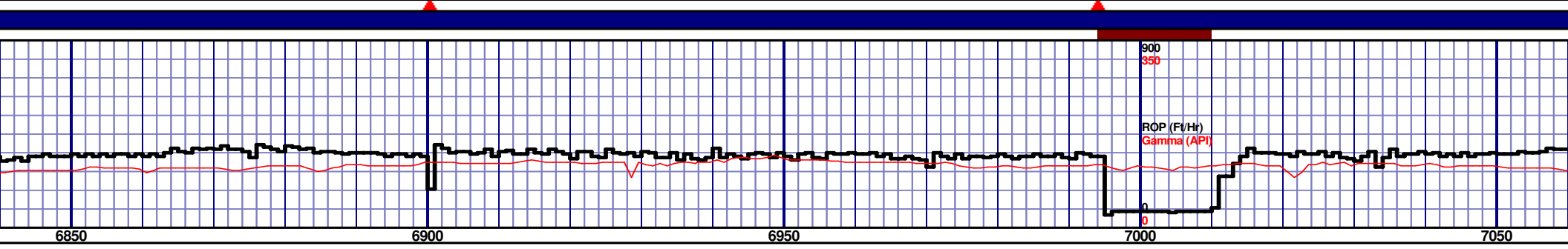
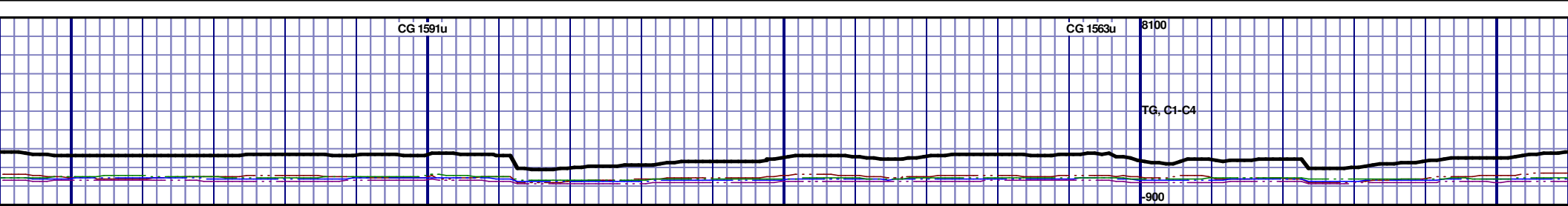


5470 TVD									
5670									
5870									
6180'-6210': CHK: 85% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 15% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6210'-6240': CHK: 85% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 15% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6240'-6270': CHK: 80% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 20% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6270'-6300': CHK: 95% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 5% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6300'-6330': CHK: 75% (CaCO3 60%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 25% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6330'-6360': CHK: 90% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 10% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6360'-6390': CHK: 85% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, TRC FREE BENT, 15% FREE MARL, MOD GYSHBLK STN, TRC MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6390'-6420': CHK: 85% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, TRC FREE BENT, 15% FREE MARL, MOD GYSHBLK STN, TRC MIN FLOR, IMMED BLUE STRM CUT, YLW RING		

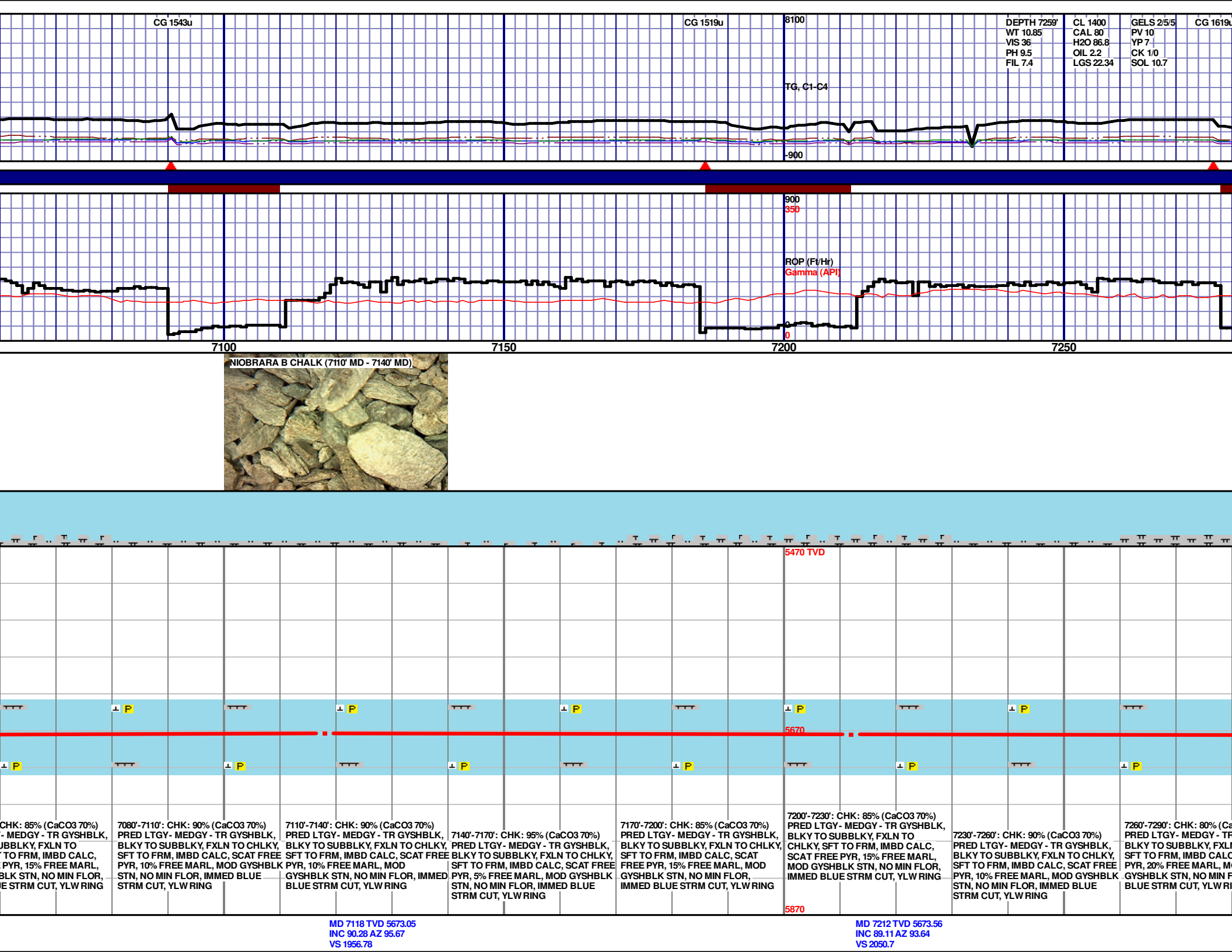


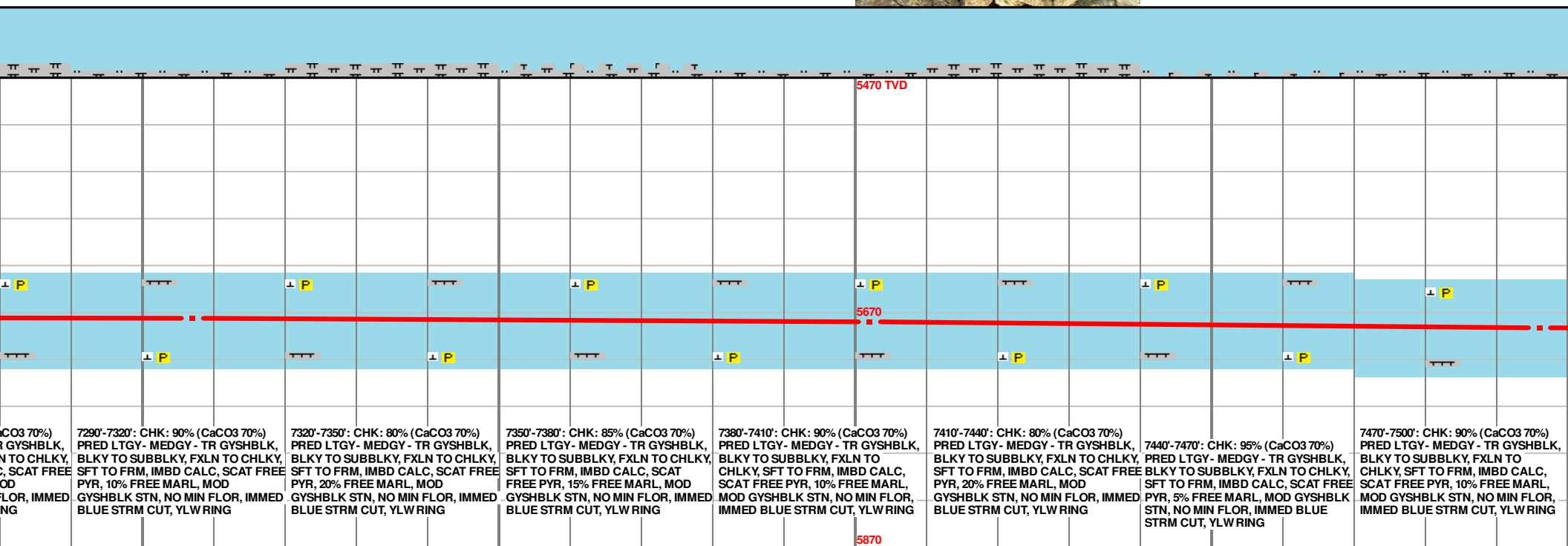
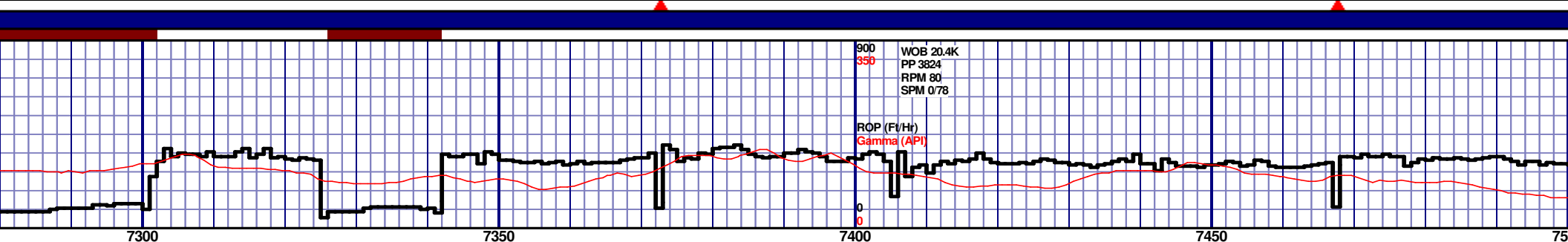
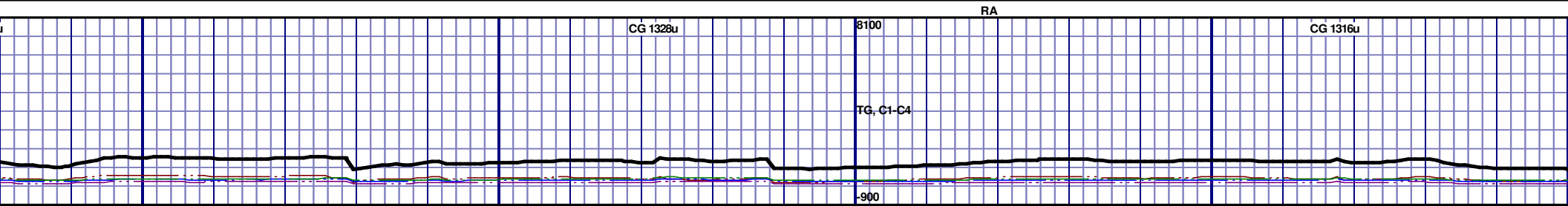
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INC 89.52 AZ 86.38
VS 1294.9

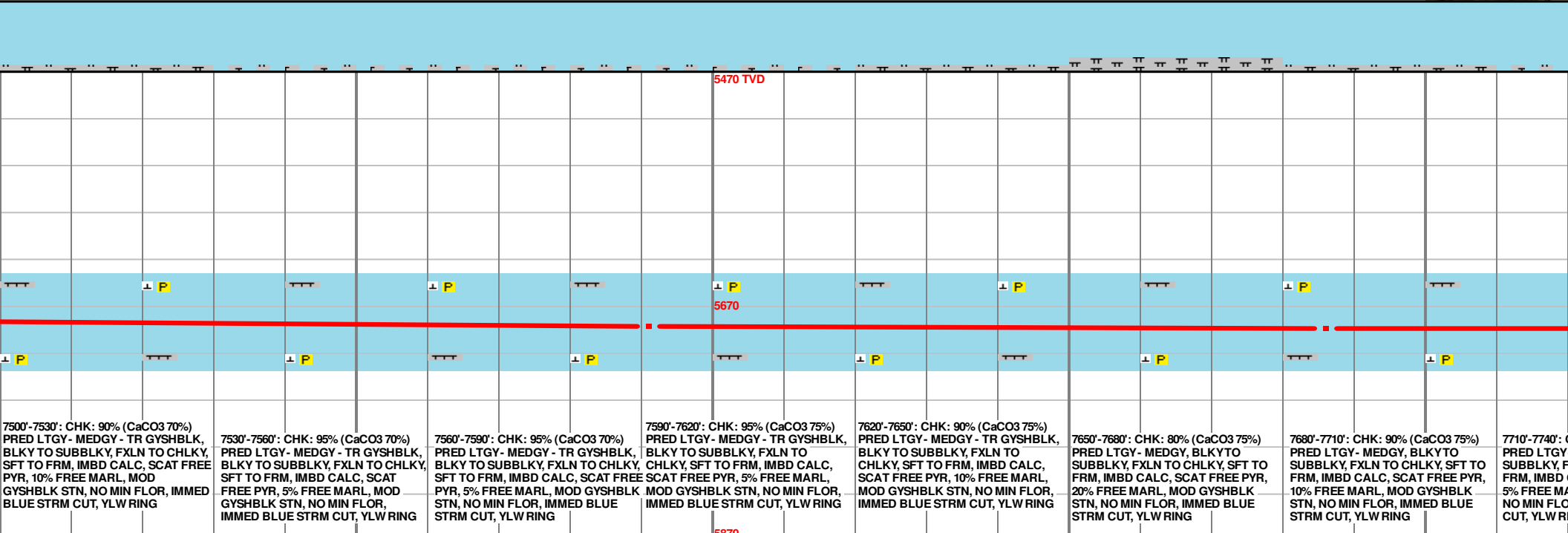
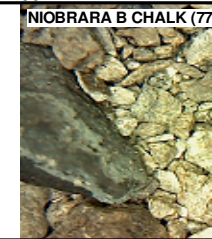
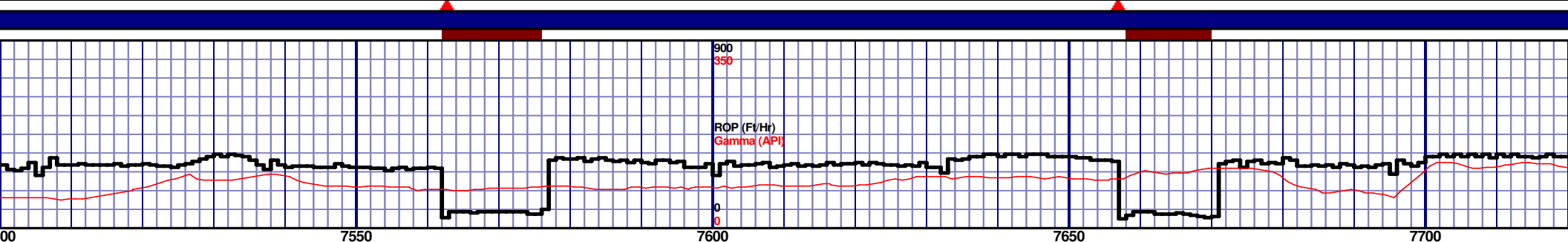
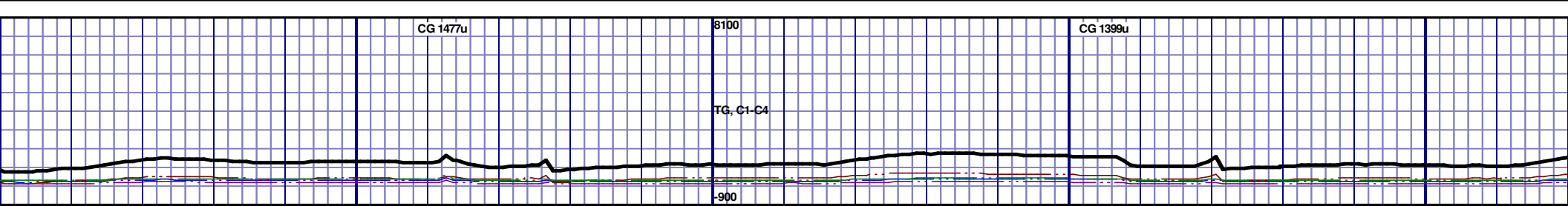
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INC 91.72 AZ 88.39
VS 1388.51

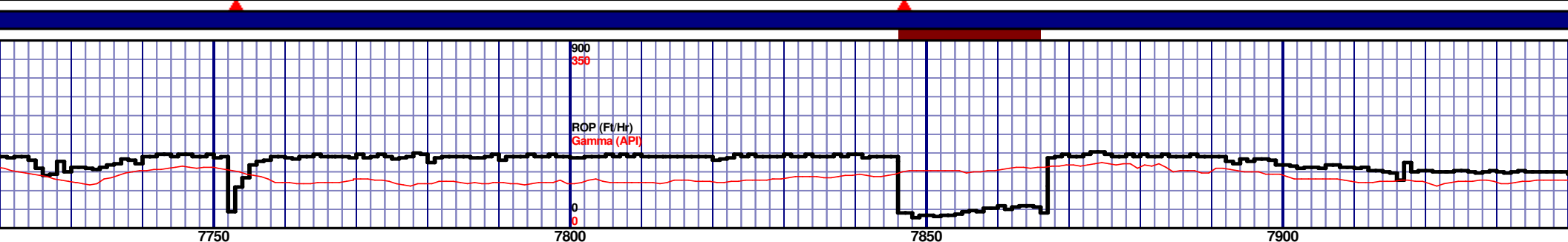
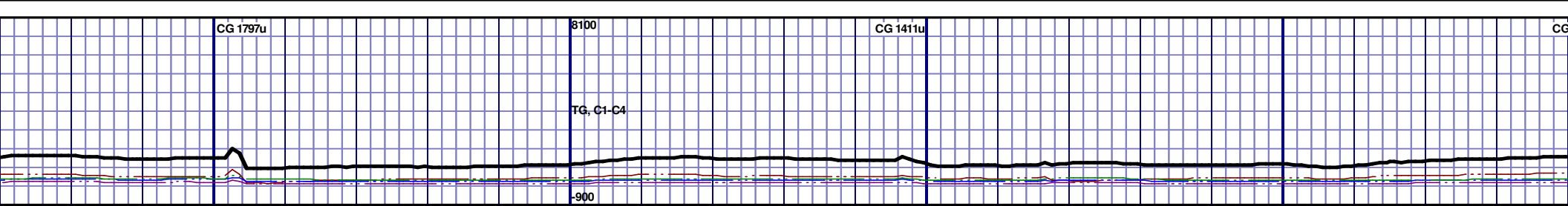


6840'-6870': CHK: 85% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 15% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6870'-6900': CHK: 95% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 5% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6900'-6930': CHK: 90% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 10% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6930'-6960': CHK: 80% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 20% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6960'-6990': CHK: 85% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 15% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	6990'-7020': CHK: 70% (CaCO3 60%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 30% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7020'-7050': CHK: 90% (CaCO3 70%) PRED LTGY - MEDGY - TR GYSHBLK, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 10% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7050'-7080': PRED LTGY - BLKY TO SU CHLKY, SFT SCAT FREE MOD GYSH IMMED BLU
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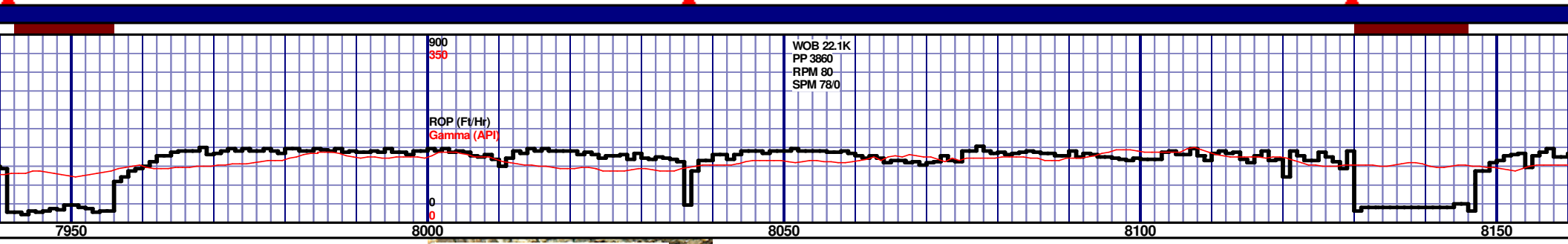
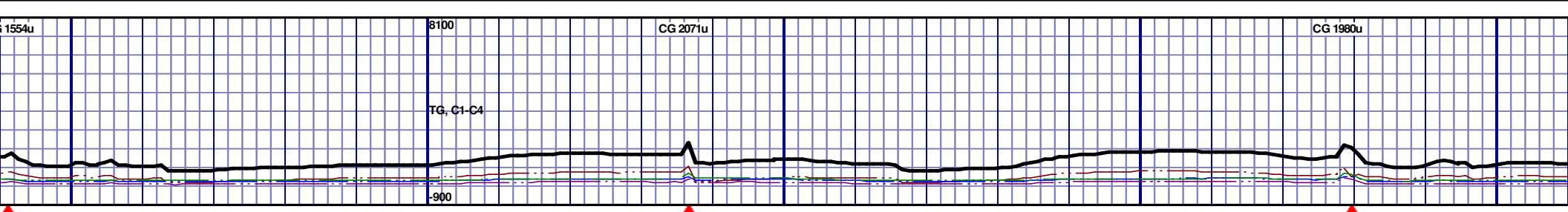




5470 TVD									
5670									
5870									
CHK: 95% (CaCO3 75%) - MEDGY, BLKYTO FXLN TO CHLKY, SFT TO CALC, SCAT FREE PYR, OR, IMMED BLUE STRM ING	7740'-7770': CHK: 75% (CaCO3 70%) PRED LTGY- MEDGY, BLKYTO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 25% FREE MARL, MOD GYSHBLK STN, NO MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7770'-7800': CHK: 70% (CaCO3 70%) PRED LTGY- MEDGY, BLKYTO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 30% FREE MARL, MOD GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7800'-7830': CHK: 85% (CaCO3 70%) PRED LTGY- MEDGY, BLKYTO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, TRC FREE BENT, 15% FREE MARL, MOD GYSHBLK STN, 10% MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7830'-7860': CHK: 90% (CaCO3 70%) PRED LTGY- MEDGY, BLKYTO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, TRC FREE BENT, 10% FREE MARL, MOD GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7860'-7890': CHK: 80% (CaCO3 70%) PRED LTGY- MEDGY, BLKYTO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, FREE BENT, 20% FREE MARL, MOD GYSHBLK STN, 10% MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7890'-7920': CHK: 85% (CaCO3 70%) PRED LTGY- MEDGY, BLKYTO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, FREE BENT, 15% FREE MARL, MOD GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7920'-7950': CHK: 70% (CaCO3 70%) PRED LTGY- MEDGY, BLKYTO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, 30% FREE MARL, MOD GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7950'-7980': CHK: 85% (CaCO3 70%) PRED LTGY- MEDGY, BLKYTO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, FREE BENT, 15% FREE MARL, MOD GYSHBLK STN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7980'-8010': CHK: 80% (CaCO3 70%) PRED LTGY- MEDGY, BLKYTO SUBBLKY, FXLN TO CHLKY, SFT TO FRM, IMBD CALC, SCAT FREE PYR, FREE BENT, 20% FREE MARL, MOD GYSHBLK STN, 10% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

MD 7780 TVD 5689.15
INC 89.35 AZ 85.68
VS 2616.03

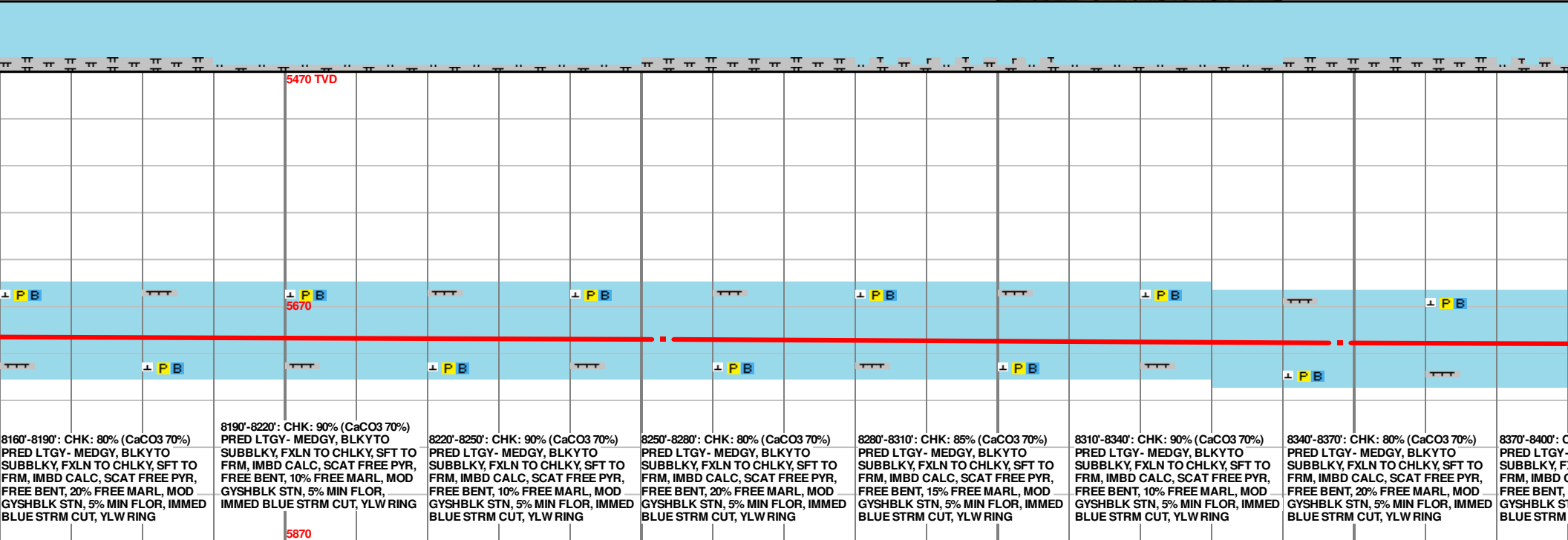
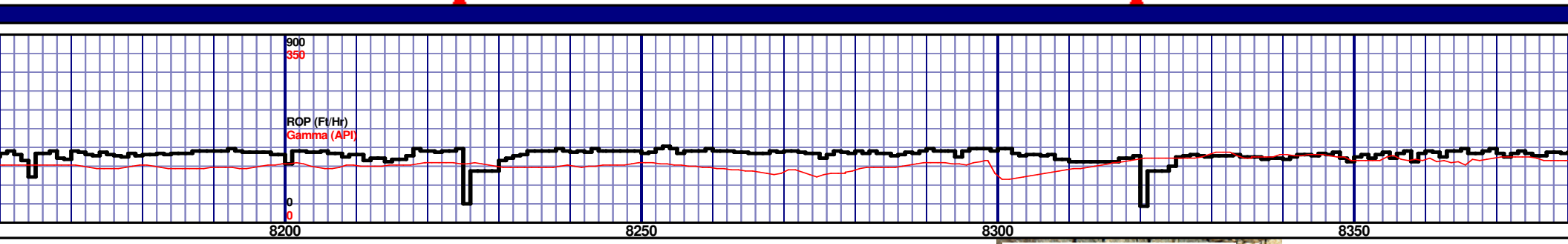
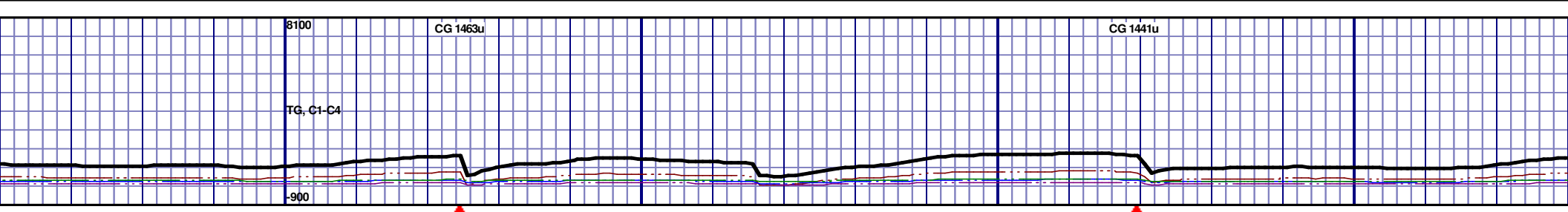
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VS 2710.49

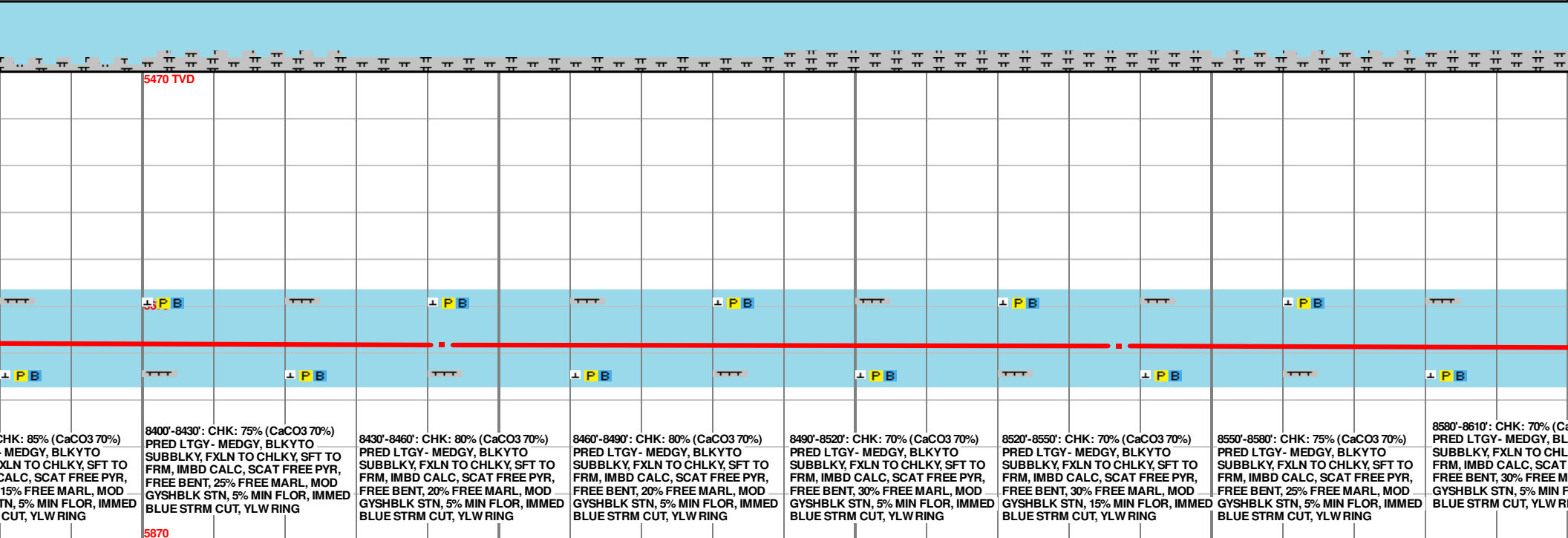
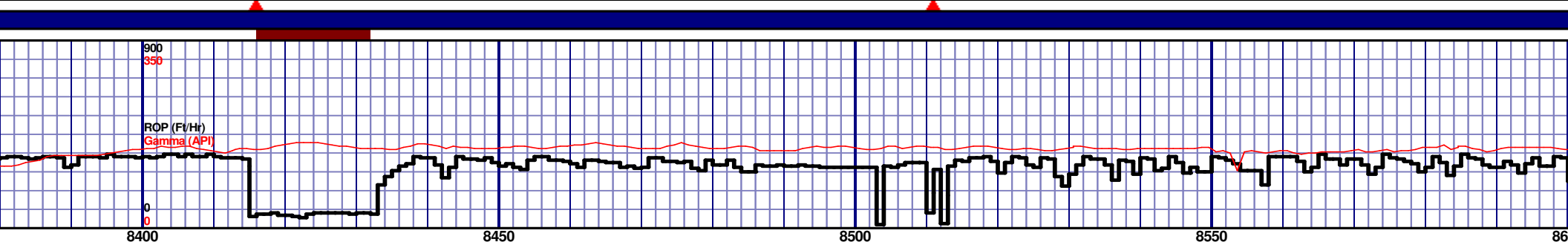


5470 TVD									
5670									
5870									
CO3 70%)	7950'-7980': CHK: 80% (CaCO3 70%)	7980'-8010': CHK: 60% (CaCO3 70%)	8010'-8040': CHK: 60% (CaCO3 70%)	8040'-8070': CHK: 70% (CaCO3 70%)	8070'-8100': CHK: 85% (CaCO3 70%)	8100'-8130': CHK: 70% (CaCO3 70%)	8130'-8160': CHK: 80% (CaCO3 70%)		
XYTO	PRED LTGY- MEDGY, BLKYTO	PRED LTGY- MEDGY, BLKYTO	PRED LTGY- MEDGY, BLKYTO	PRED LTGY- MEDGY, BLKYTO	PRED LTGY- MEDGY, BLKYTO	PRED LTGY- MEDGY, BLKYTO	PRED LTGY- MEDGY, BLKYTO		
FREE PYR,	SUBBLKY, FXLN TO CHLKY, SFT TO	SUBBLKY, FXLN TO CHLKY, SFT TO	SUBBLKY, FXLN TO CHLKY, SFT TO	SUBBLKY, FXLN TO CHLKY, SFT TO	SUBBLKY, FXLN TO CHLKY, SFT TO	SUBBLKY, FXLN TO CHLKY, SFT TO	SUBBLKY, FXLN TO CHLKY, SFT TO		
SHBLK	FRM, IMBD CALC, SCAT FREE PYR,	FRM, IMBD CALC, SCAT FREE PYR,	FRM, IMBD CALC, SCAT FREE PYR,	FRM, IMBD CALC, SCAT FREE PYR,	FRM, IMBD CALC, SCAT FREE PYR,	FRM, IMBD CALC, SCAT FREE PYR,	FRM, IMBD CALC, SCAT FREE PYR,		
D BLUE	20% FREE MARL, MOD GYSHBLK	20% FREE MARL, MOD GYSHBLK	20% FREE MARL, MOD GYSHBLK	20% FREE MARL, MOD GYSHBLK	20% FREE MARL, MOD GYSHBLK	20% FREE MARL, MOD GYSHBLK	20% FREE MARL, MOD GYSHBLK		
	STN, 5% MIN FLOR, IMMED BLUE	STN, 5% MIN FLOR, IMMED BLUE	STN, 5% MIN FLOR, IMMED BLUE	STN, 5% MIN FLOR, IMMED BLUE	STN, 5% MIN FLOR, IMMED BLUE	STN, 5% MIN FLOR, IMMED BLUE	STN, 5% MIN FLOR, IMMED BLUE		
	STRM CUT, YLW RING	STRM CUT, YLW RING	STRM CUT, YLW RING	STRM CUT, YLW RING	STRM CUT, YLW RING	STRM CUT, YLW RING	STRM CUT, YLW RING		

MD 7969 TVD 5691.62
INC 89.17 AZ 88.51
VS 2804.17

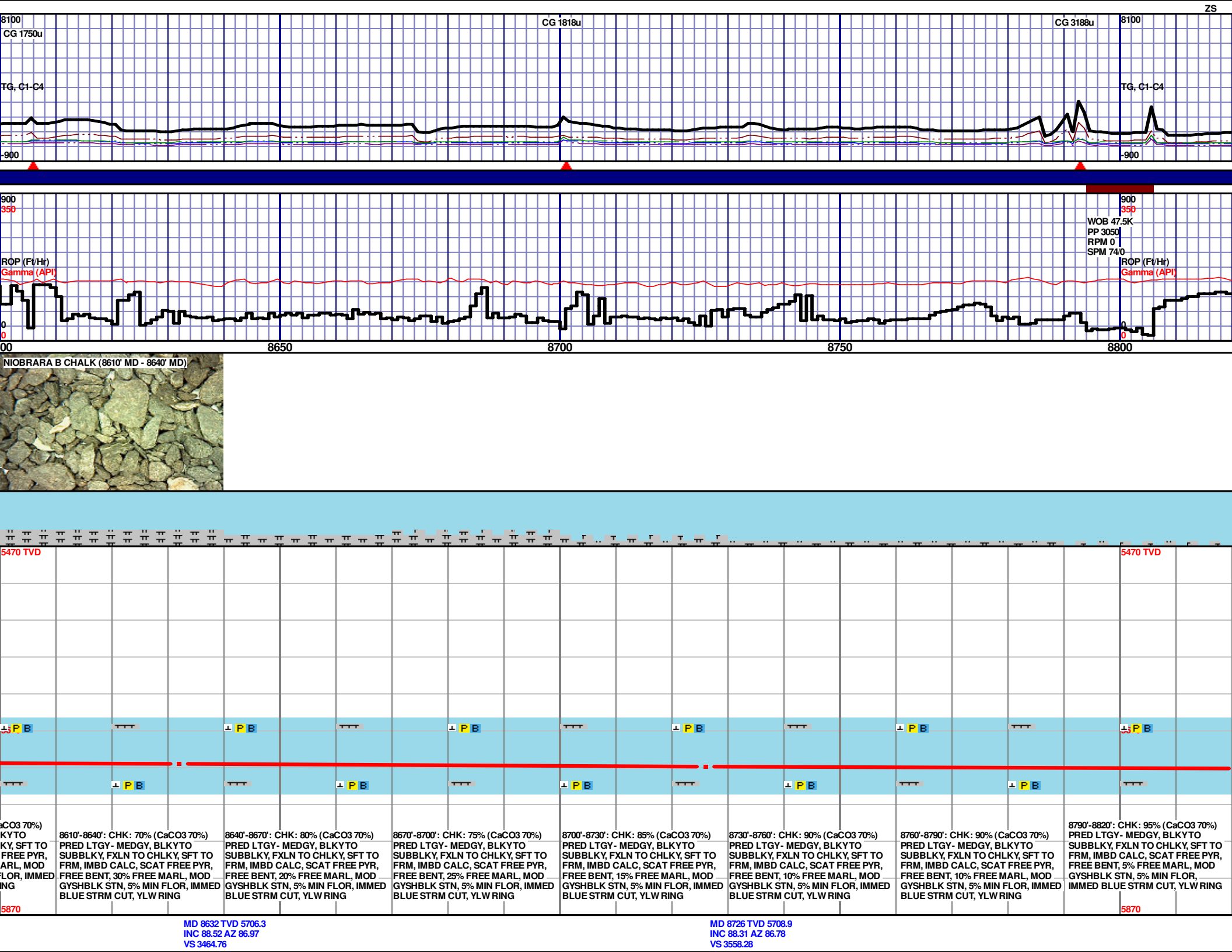
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INC 87.97 AZ 87.59
VS 2898.86

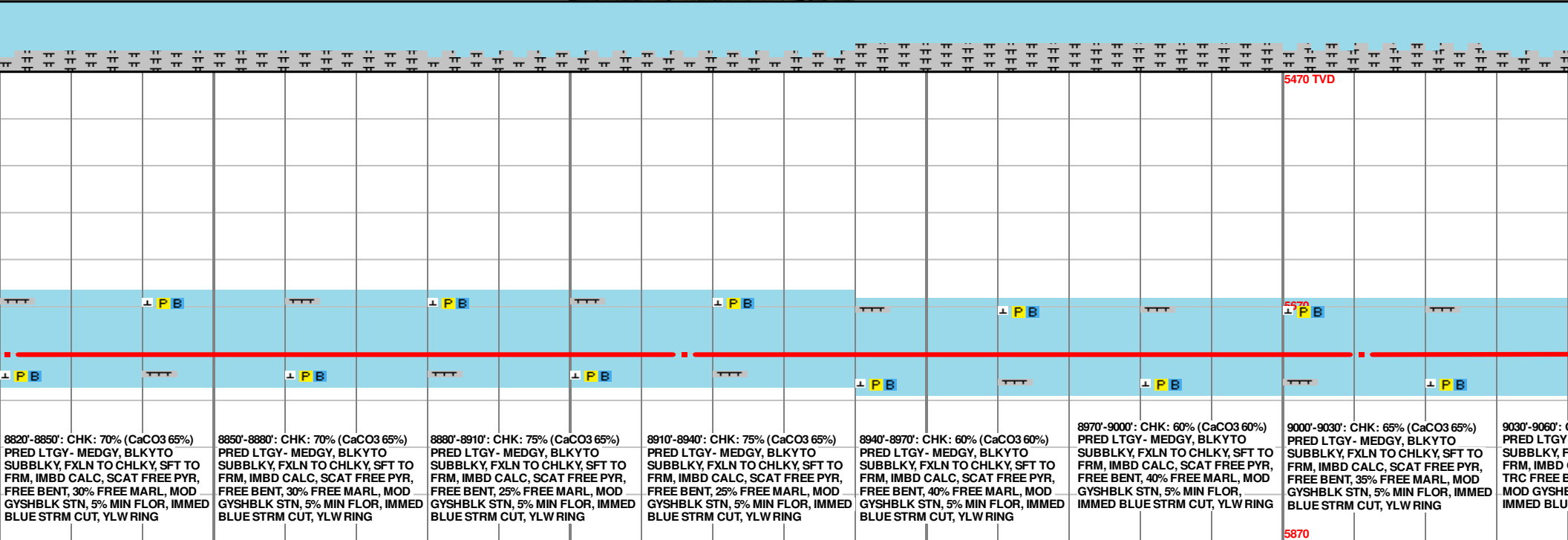
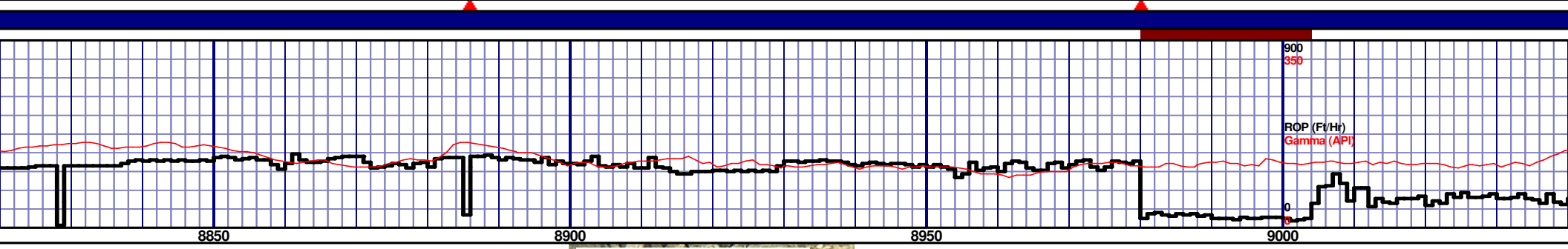
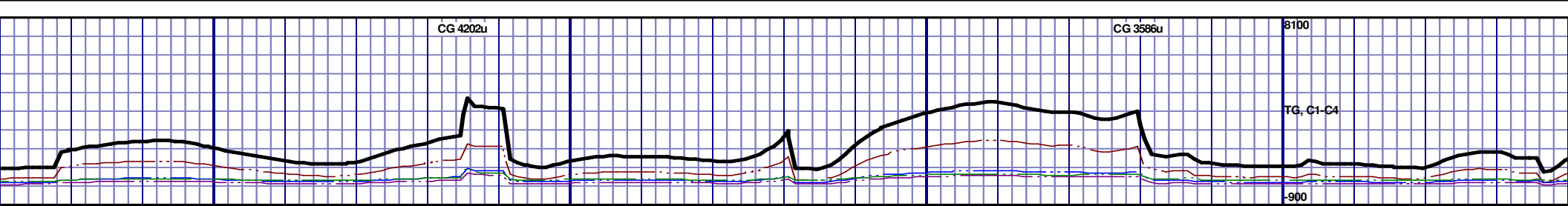


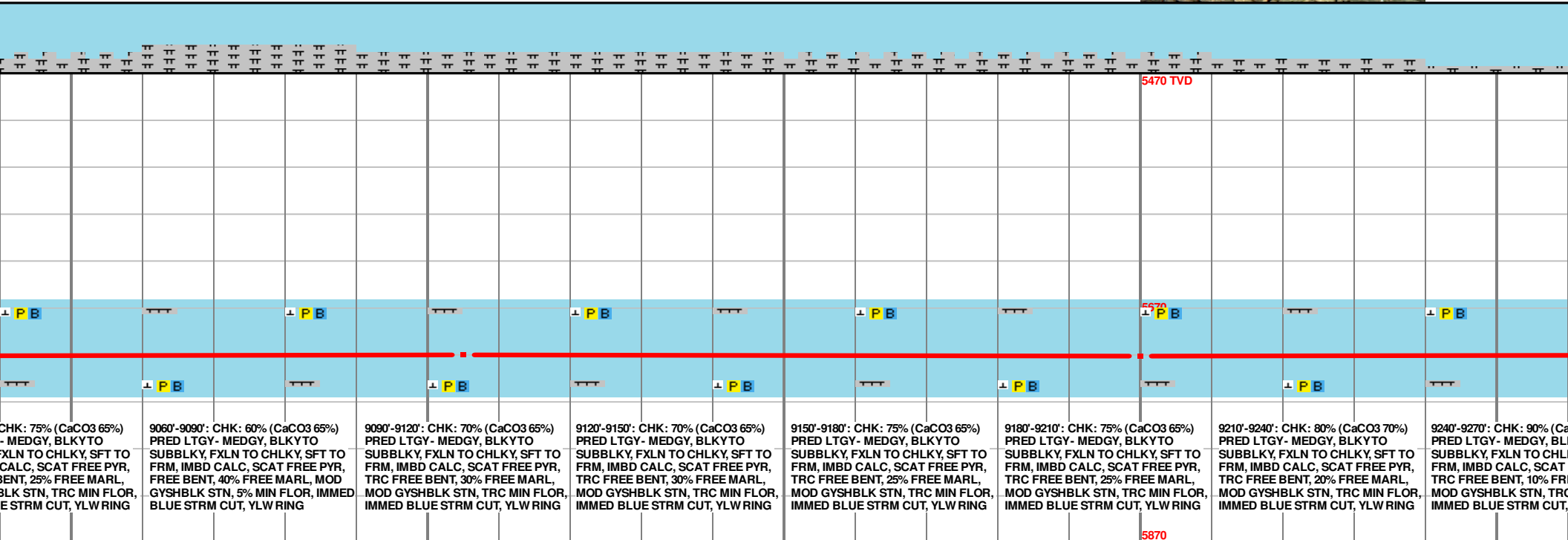
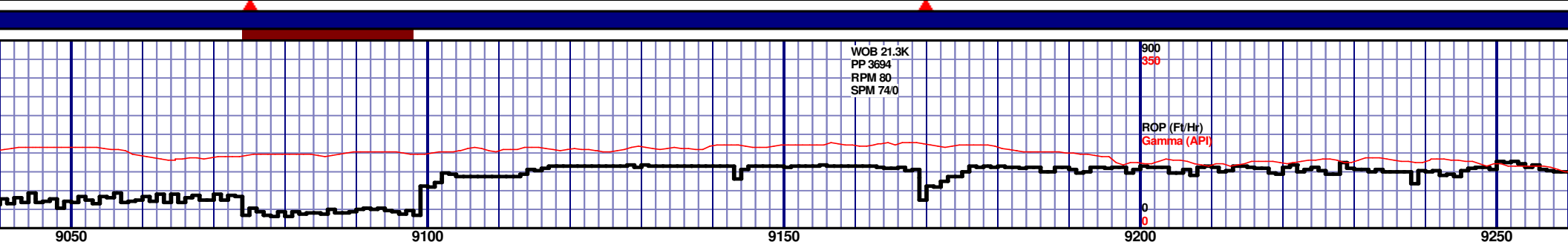


8580-8610: CHK: 70% (C
PRED LTGY- MEDGY, BL
SUBBLKY, FXLN TO CHL
FRM, IMBD CALC, SCAT
FREE BENT, 30% FREE M
GYSHBLK STN, 5% MIN F
BLUE STRM CUT, YLWR

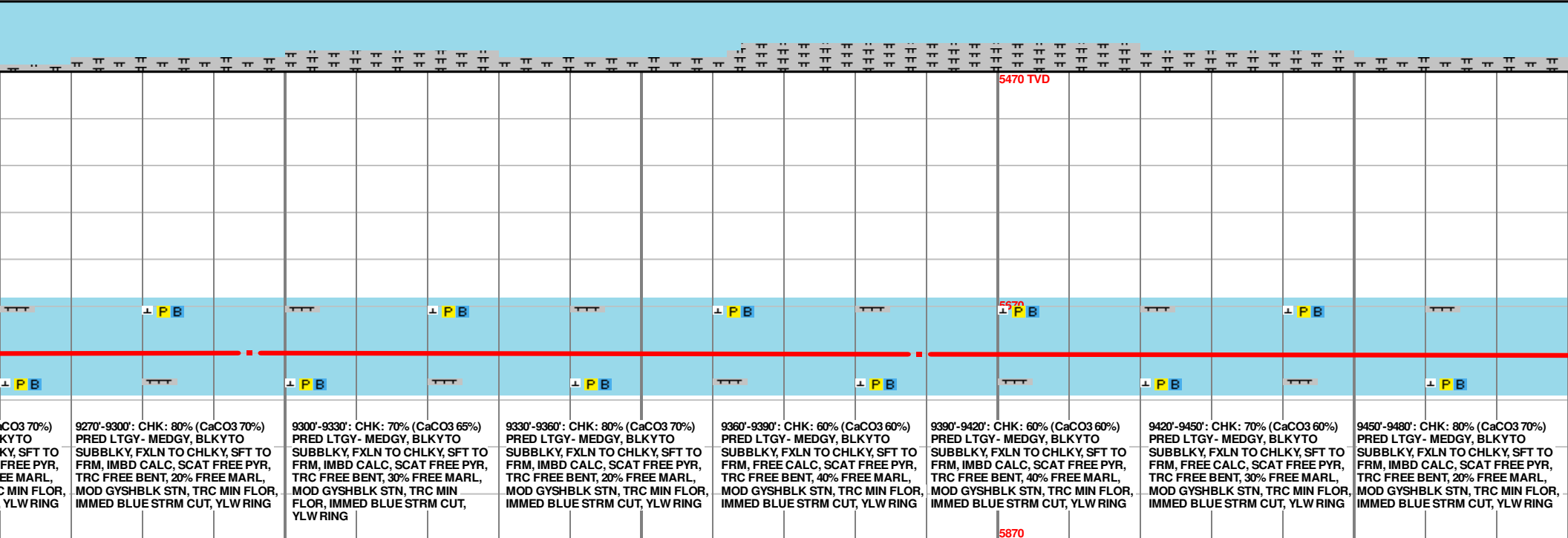
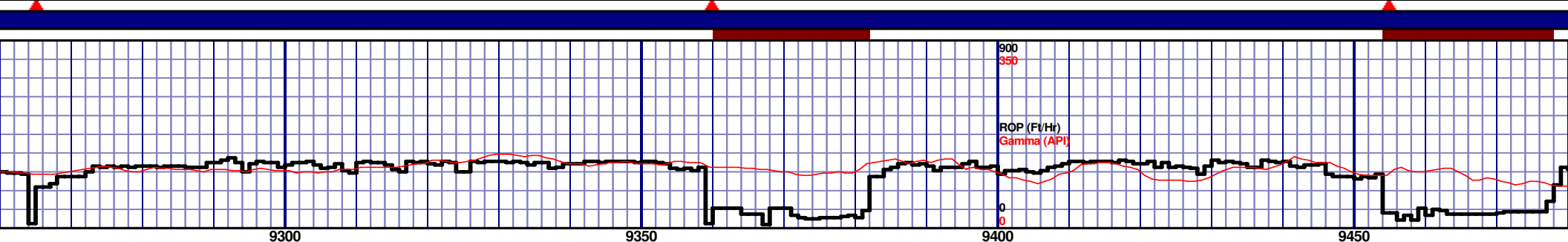
MD 8537 TVD 5704.22
INC 88.97 AZ 87.51
VS 3370.18





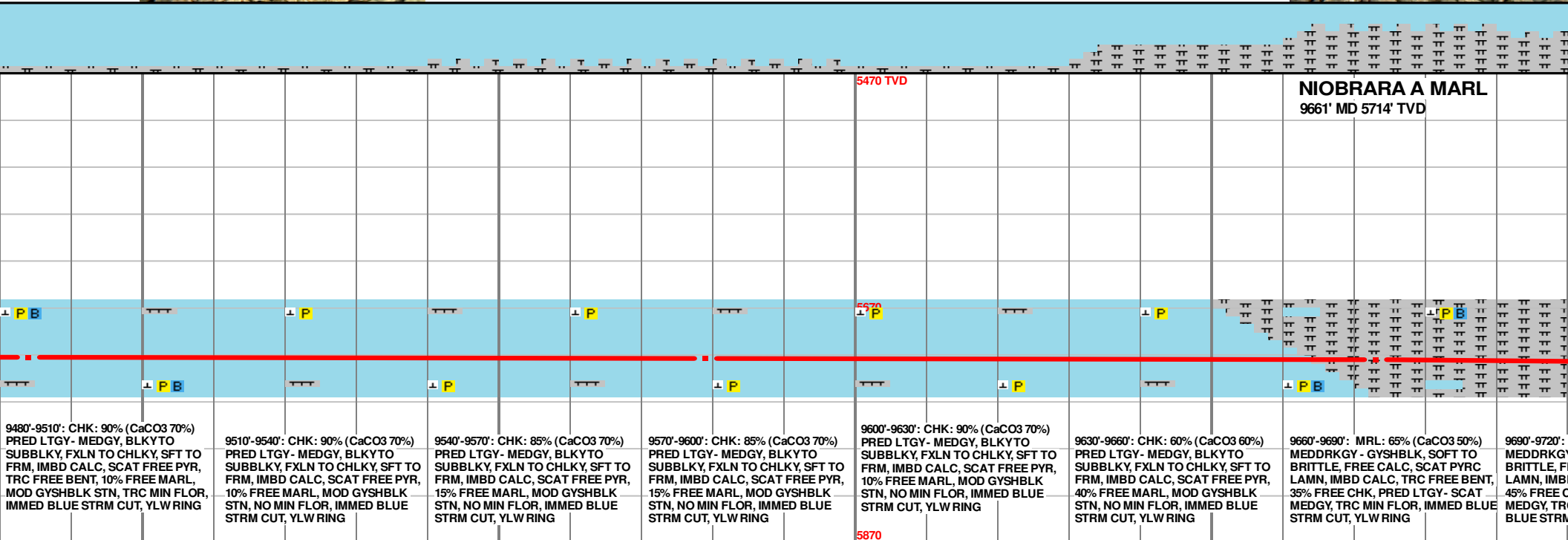
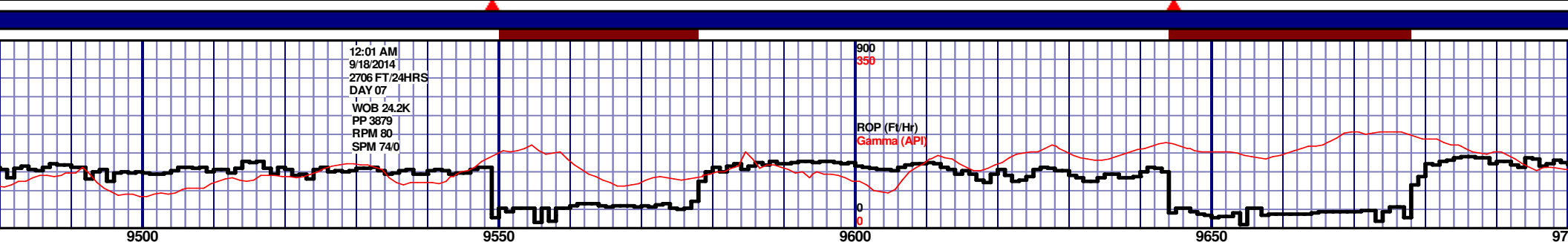
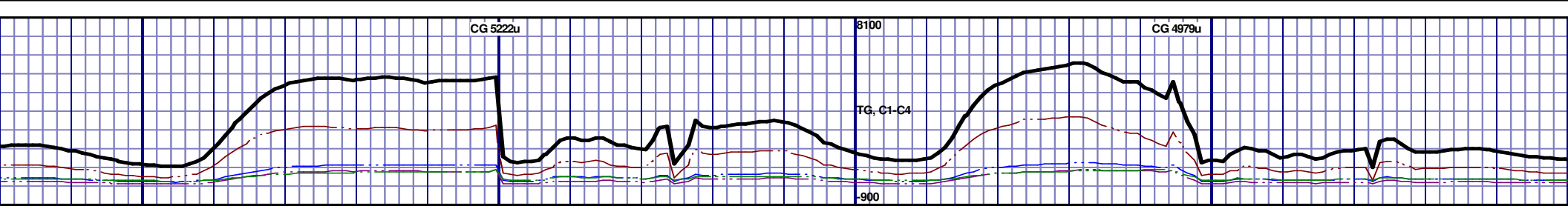


MD 9200 TVD 5710.58
INC 89.86 AZ 89.85
VS 4030.82



9450'-9480': CHK: 80% (CaCO3 70%)
PRED LTGY- MEDGY, BLKYTO
SUBBLKY, FXLN TO CHLKY, SFT TO
FRM, IMBD CALC, SCAT FREE PYR,
TRC FREE BENT, 20% FREE MARL,
MOD GYSHBLK STN, TRC MIN FLOR
IMMED BLUE STRM CUT, YLW RING

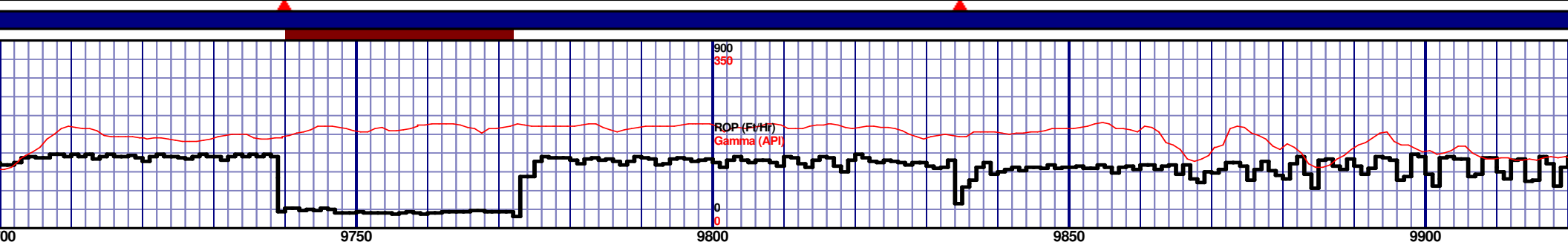
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INC 89.28 AZ 90.29
VS 4219.59



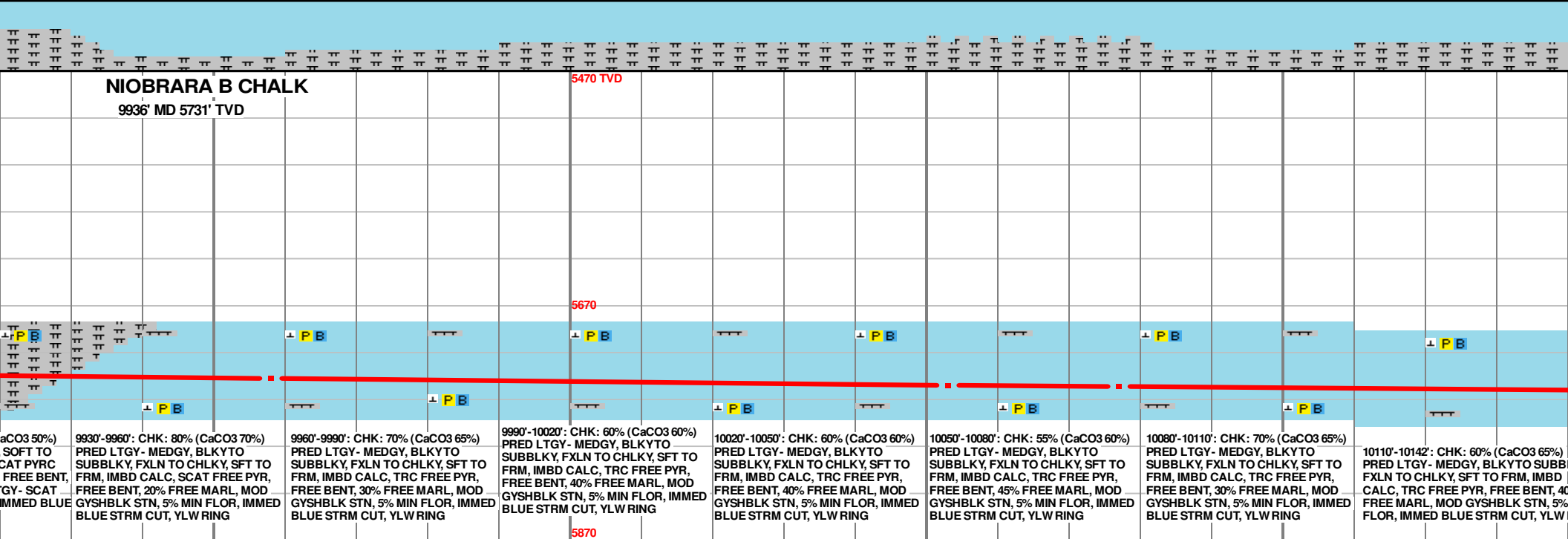
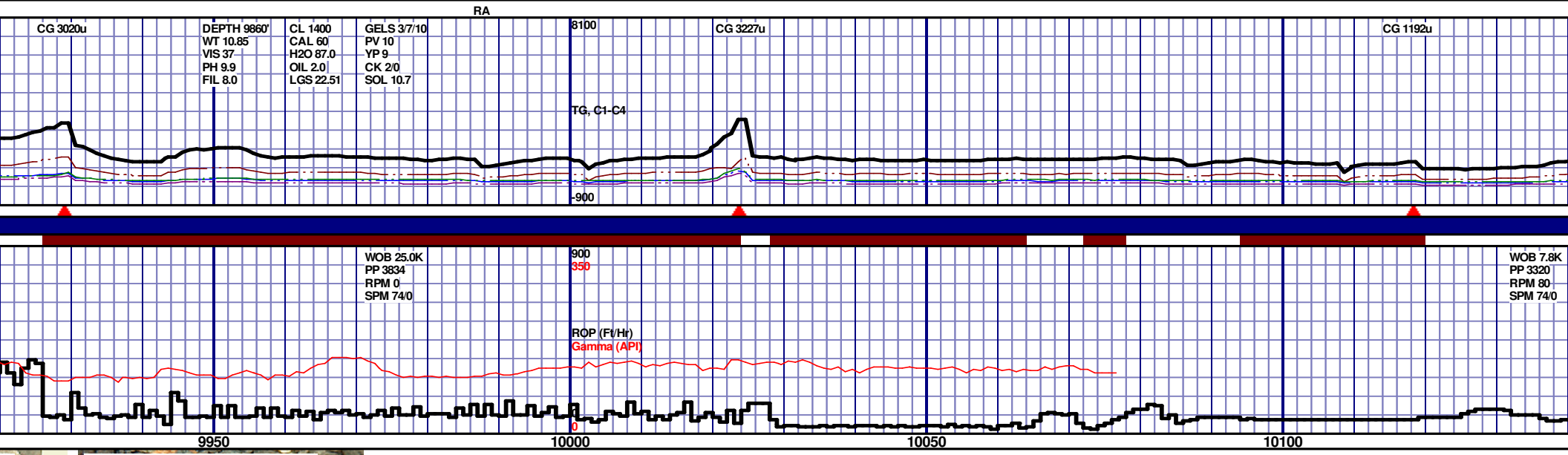
MD 9484 TVD 5711.83
INC 89.52 AZ 92.41
VS 4314.56

MD 9579 TVD 5712.77
INC 89.35 AZ 93.46
VS 4409.55

MD 9673 TVD 5714.38
INC 88.69 AZ 92.99
VS 4503.53



<p>9700'-9750': MRL: 70% (CaCO3 45%) MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, FREE CALC, SCAT PYRC LAMN, IMBD CALC, TRC FREE BENT, 30% FREE CHK, PRED LTGY - SCAT MEDGY, TRC MIN FLOR, IMMED BLUE STRM CUT, YLW RING</p>	<p>9750'-9780': MRL: 80% (CaCO3 40%) MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, FREE CALC, SCAT PYRC LAMN, IMBD CALC, TRC FREE BENT, 20% FREE CHK, PRED LTGY - SCAT MEDGY, TRC MIN FLOR, IMMED BLUE STRM CUT, YLW RING</p>	<p>9780'-9810': MRL: 75% (CaCO3 45%) MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, FREE CALC, SCAT PYRC LAMN, IMBD CALC, TRC FREE BENT, 25% FREE CHK, PRED LTGY - SCAT MEDGY, TRC MIN FLOR, IMMED BLUE STRM CUT, YLW RING</p>	<p>9810'-9840': MRL: 80% (CaCO3 40%) MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, FREE CALC, SCAT PYRC LAMN, IMBD CALC, TRC FREE BENT, 20% FREE CHK, PRED LTGY - SCAT MEDGY, TRC MIN FLOR, IMMED BLUE STRM CUT, YLW RING</p>	<p>9840'-9870': MRL: 75% (CaCO3 40%) MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, FREE CALC, SCAT PYRC LAMN, IMBD CALC, TRC FREE BENT, 25% FREE CHK, PRED LTGY - SCAT MEDGY, TRC MIN FLOR, IMMED BLUE STRM CUT, YLW RING</p>	<p>9870'-9900': MRL: 85% (CaCO3 40%) MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, FREE CALC, SCAT PYRC LAMN, IMBD CALC, TRC FREE BENT, 15% FREE CHK, PRED LTGY - SCAT MEDGY, TRC MIN FLOR, IMMED BLUE STRM CUT, YLW RING</p>	<p>9900'-9930': MRL: 60% (CaCO3 40%) MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, FREE CALC, SCAT PYRC LAMN, IMBD CALC, TRC FREE BENT, 40% FREE CHK, PRED LTGY - SCAT MEDGY, TRC MIN FLOR, IMMED BLUE STRM CUT, YLW RING</p>
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MD 9958 TVD 5731.95
INC 86.39 AZ 89.23
VS 4787.76

MD 10053 TVD 5737.54
INC 86.87 AZ 89.18
VS 4882.44

MD 10077 TVD 5738.86
INC 86.84 AZ 89.49
VS 4906.37

PT

BOTTOMS UP GAS
1237u

DRILLERS TD @ 10142'
MD @ 7:50 AM ON
9/18/2014

10150

TD @ 10142' MD

RELEASED 9/18/2014

THANK YOU FROM
ROSS APODACA,
ZACK ST. CLAIR, AND
HORIZON WELL
LOGGING, LLC

LKY,
P%
MIN
RING