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WWW.HZMUD.COM/25

Customer Information

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

Geologist: Teresa Malesardi
Noble Energy Inc.

Mud Logging Details

Logger: Cory Shorette & Brian Whitfield

Log Interval: 6750' MD to 11240' MD

Start Date: September 30, 2013

Release Date: October 4, 2013

Well Information

Well Name: Crow Creek State
AC36-75-1HN HZ

Location: 36-7N-63W
270' FSL, 1575' FEL

County: Weld
State: Colorado

Drilling Rig: H&P 277

Total Depth: 11240' MD

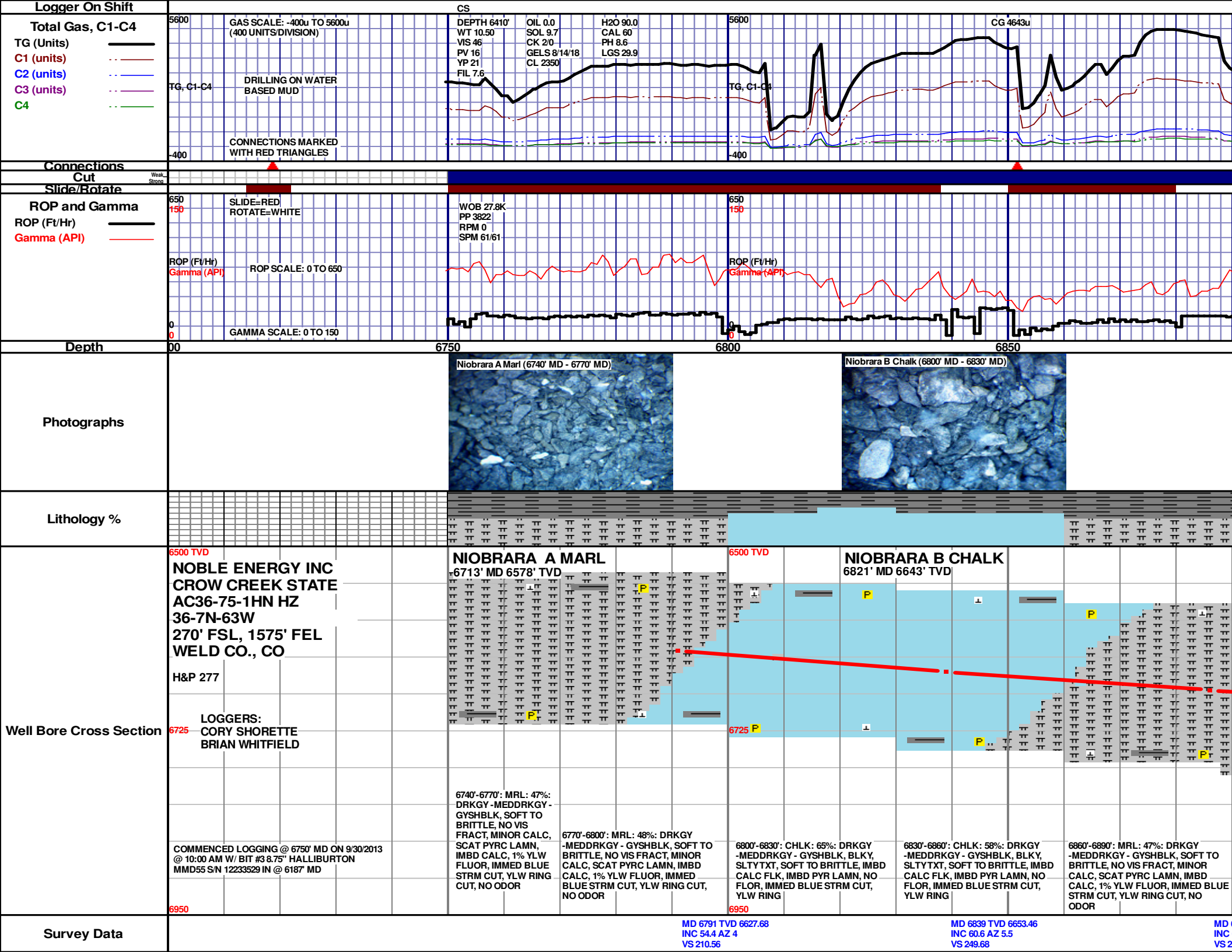
TD Date: October 4, 2013

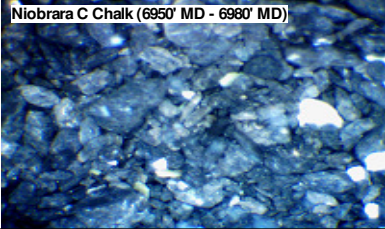
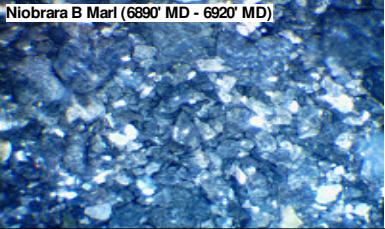
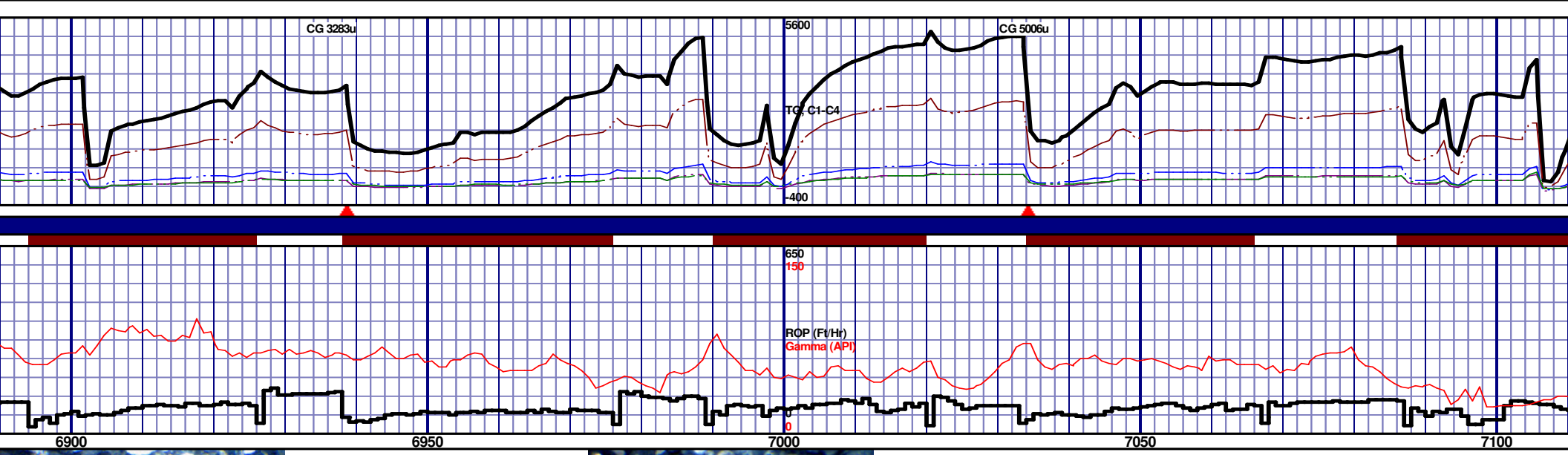
Formation: Niobrara C Chalk

KB Elevation: 4871'

GR Elevation: 4847'

API Number: 05-123-37421-0000





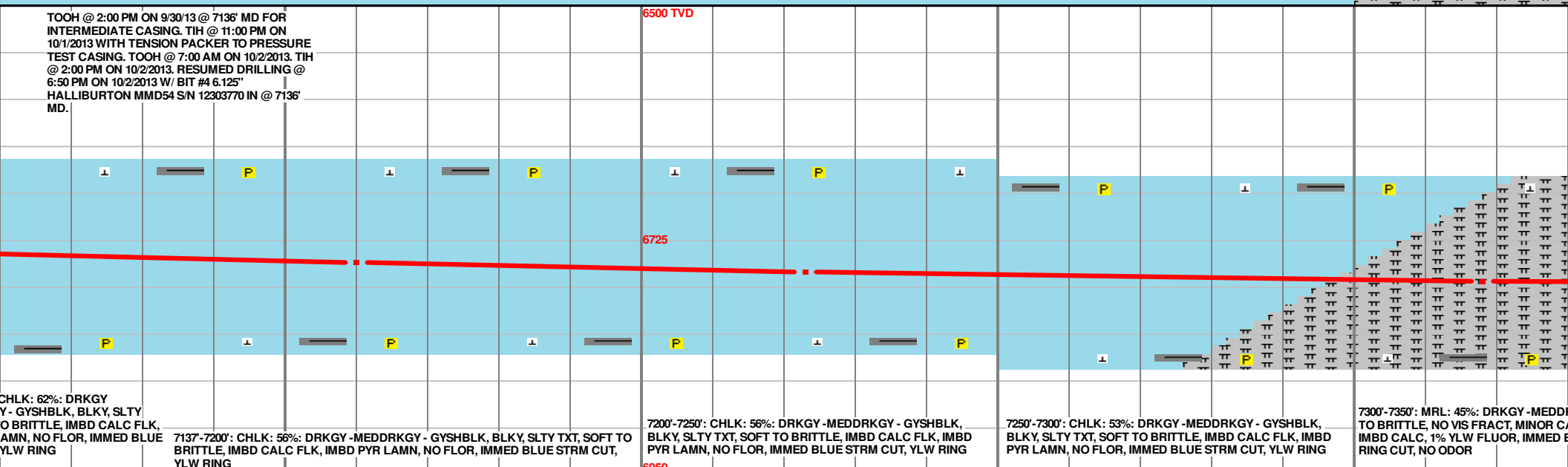
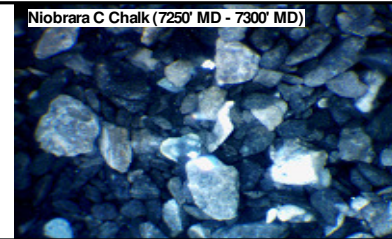
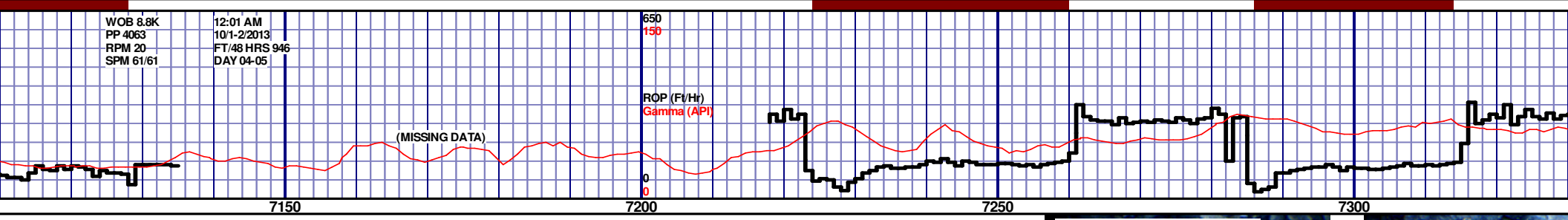
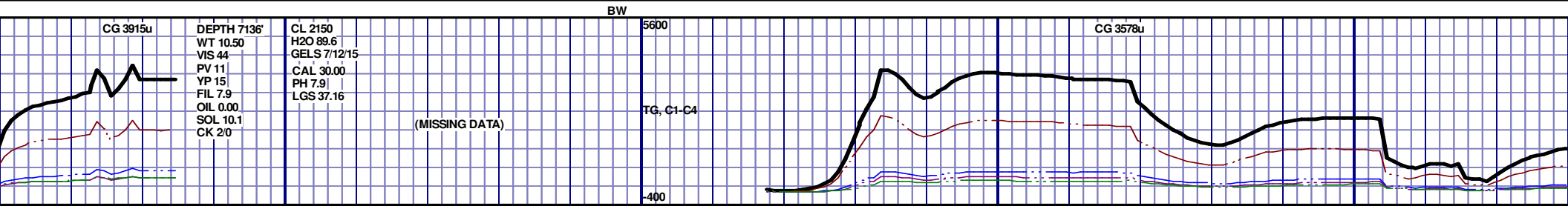
NIORARA B MARL

6890' MD 6677' TVD

NIORARA C CHALK

6974' MD 6707' TVD

6890'-6920': MRL: 44%: DRKGY -MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR	6920'-6950': MRL: 42%: DRKGY -MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR	6950'-6980': CHLK: 62%: DRKGY -MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING	6980'-7010': CHLK: 70%: DRKGY -MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING	7010'-7040': CHLK: 60%: DRKGY -MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING	7040'-7070': CHLK: 60%: DRKGY -MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING	7070'-7100': CHLK: 58%: DRKGY -MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING	7100'-7136': -MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING
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CHLK: 62%: DRKGY
Y - GYSHBLK, BLKY, SLTY
O BRITTLE, IMBD CALC FLK,
LAMN, NO FLOR, IMMED BLUE
YLW RING

7137'-7200': CHLK: 56%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING

7200'-7250': CHLK: 56%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING

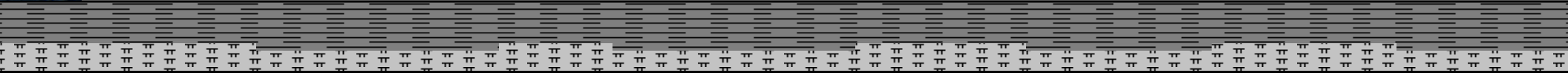
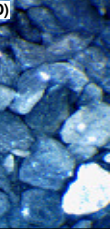
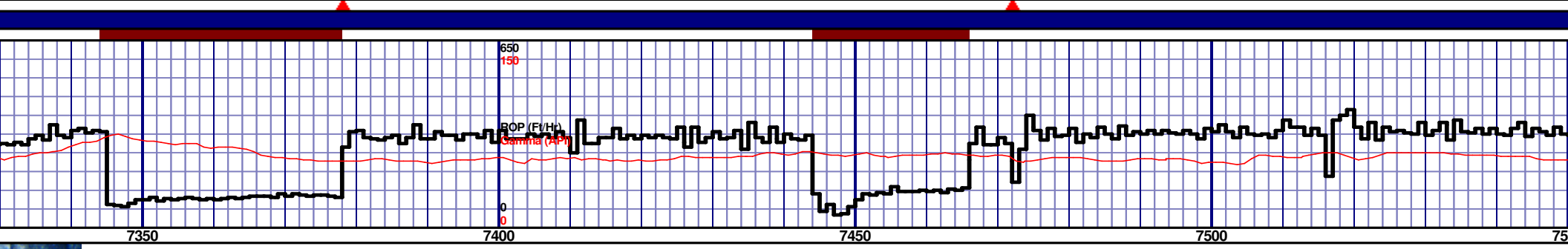
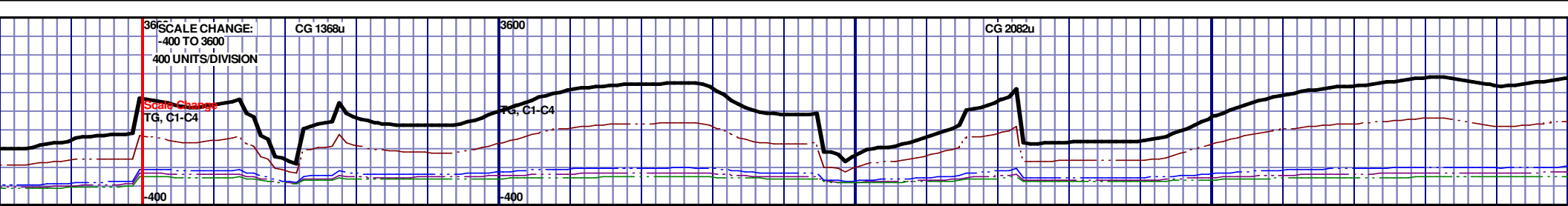
7250'-7300': CHLK: 53%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING

7300'-7350': MRL: 45%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, NO VIS FRACT, MINOR C, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, NO ODOR

MD 7160 TVD 6746.21
INC 82.7 AZ 359.2
VS 546.73

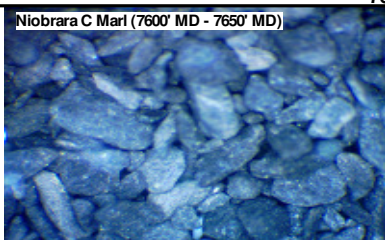
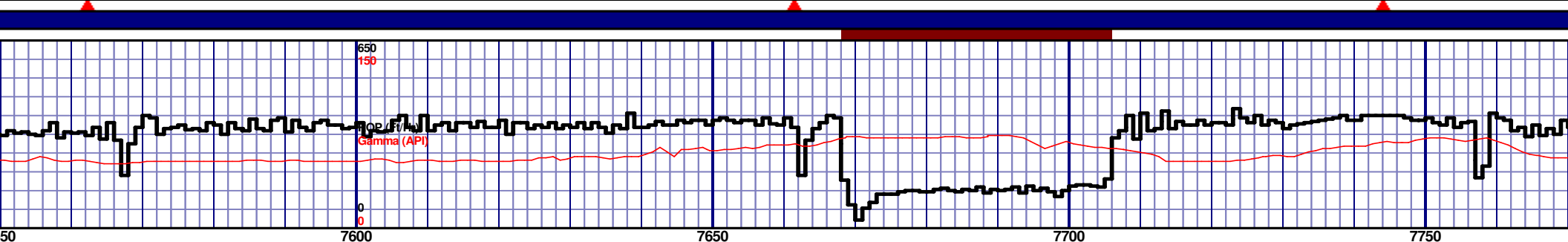
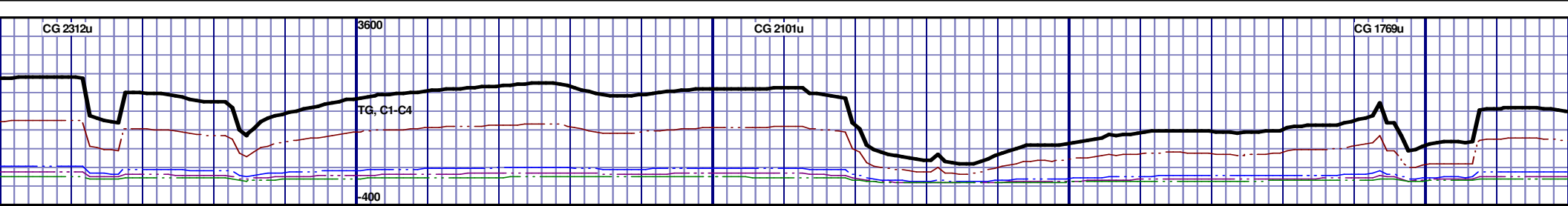
MD 7223 TVD 6754.82
INC 81.6 AZ 358
VS 608.43

MD 7318 TVD 6763.82
INC 86.7 AZ 359
VS 701.81



NIOBRARA C MARL 7346' MD 6765' TVD

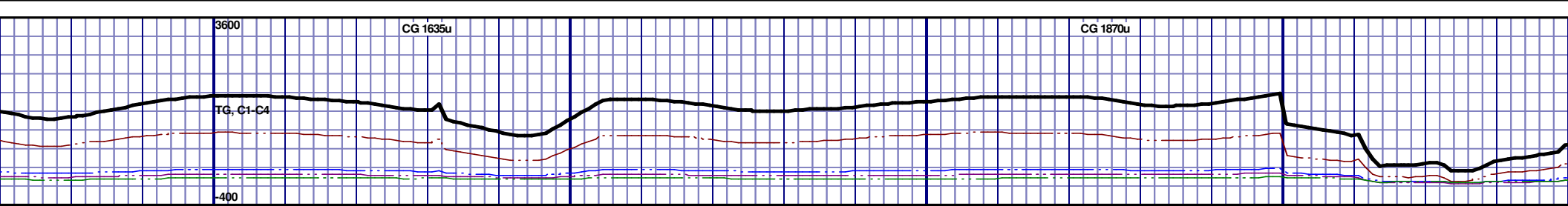
<p>DRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR</p>	<p>7350'-7400': MRL: 33%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR</p>	<p>7400'-7450': MRL: 33%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR</p>	<p>7450'-7500': MRL: 34%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR</p>	<p>7500'-7550': MRL: 35%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR</p>
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6500 TVD									
6725									
6950									
7550'-7600': MRL: 33%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR									
7600'-7650': MRL: 28%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR									
7650'-7700': MRL: 28%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR									
7700'-7750': MRL: 26%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR									
7750'-7800': MRL: 28%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR									

MD 7604 TVD 6769.43
INC 89.2 AZ 359.6
VS 963.42

MD 7699 TVD 6769.18
INC 91.1 AZ 359.4
VS 1077.1



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DAY 06 SPM 0/65

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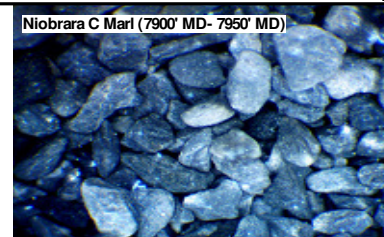
7800

7850

7900

7950

Niobrara C Marl (7900' MD- 7950' MD)



6500 TVD

6725

6950

DRKGY - MEDDRKGY - GYSHBLK, SOFT
TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN,
IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW
RING CUT, NO ODOR

7800'-7850': MRL: 36%: DRKGY - MEDDRKGY - GYSHBLK, SOFT
TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN,
IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW
RING CUT, NO ODOR

7850'-7900': MRL: 36%: DRKGY - MEDDRKGY - GYSHBLK, SOFT
TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN,
IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW
RING CUT, NO ODOR

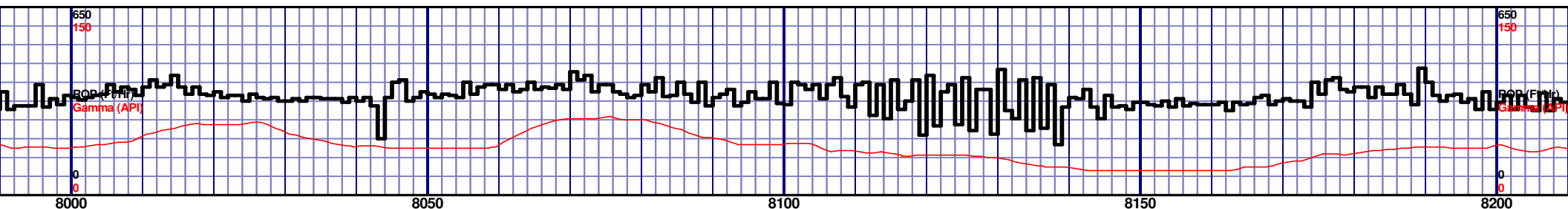
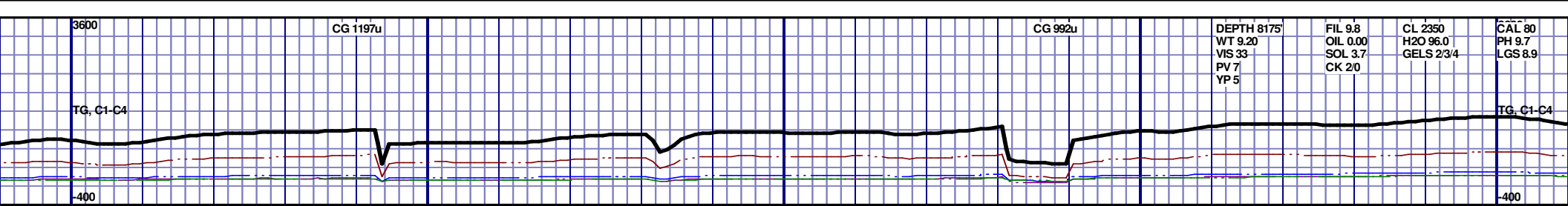
7900'-7950': MRL: 38%: DRKGY - MEDDRKGY - GYSHBLK, SOFT
TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN,
IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW
RING CUT, NO ODOR

7950'-8000': MRL: 40%: DRKGY - MEDDRKGY - GYSHBLK, SOFT
TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN,
IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW
RING CUT, NO ODOR

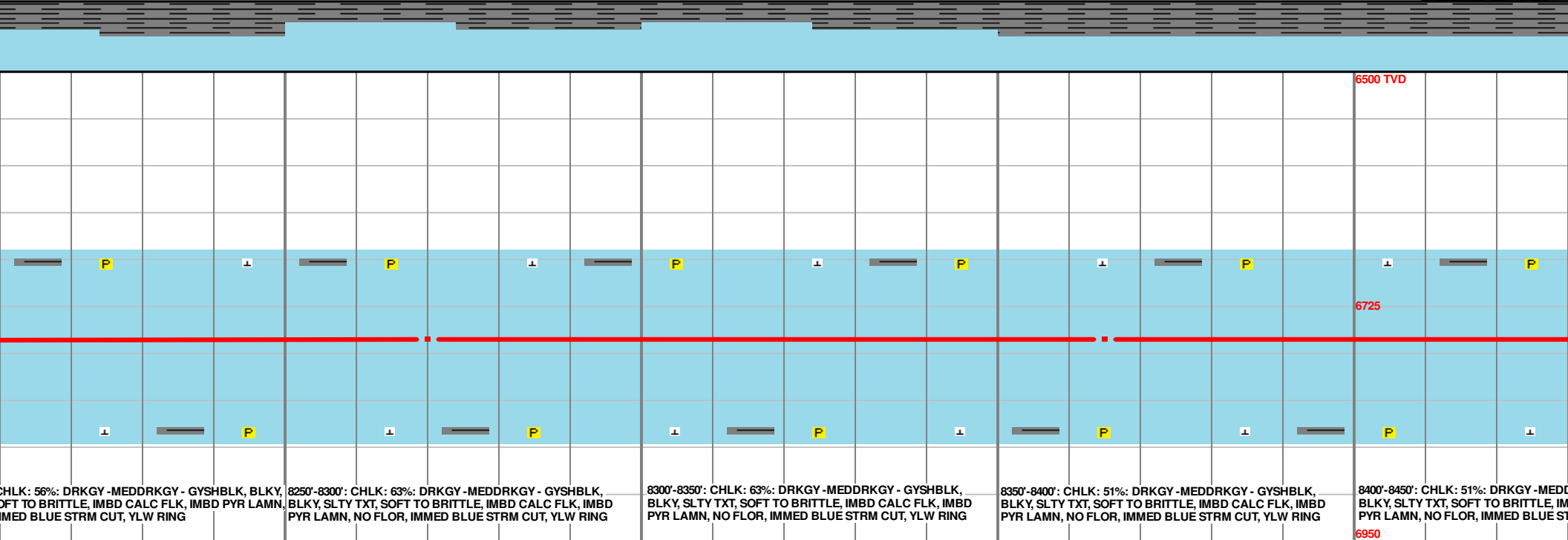
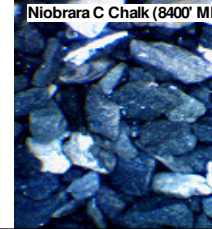
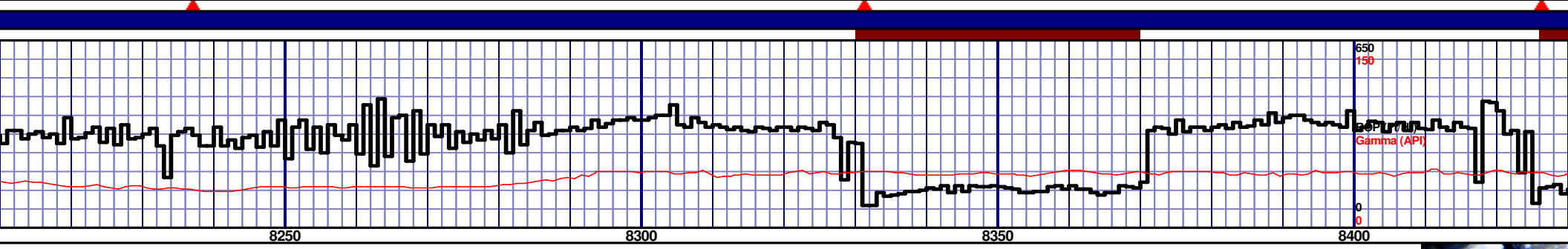
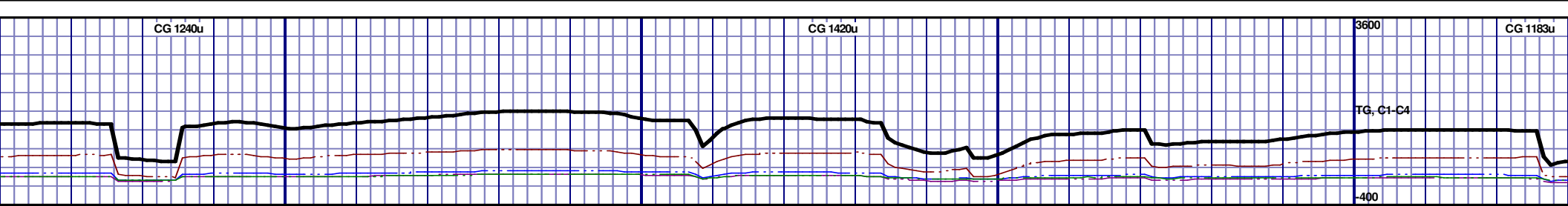
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INC 91.3 AZ 358.9
VS 1170.87

MD 7889 TVD 6765.61
INC 90.6 AZ 357.8
VS 1264.84

MD 79
INC 9
VS 13

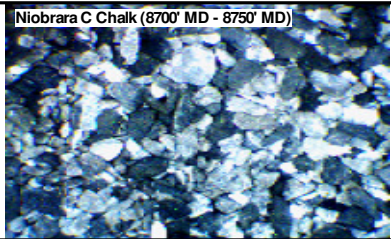
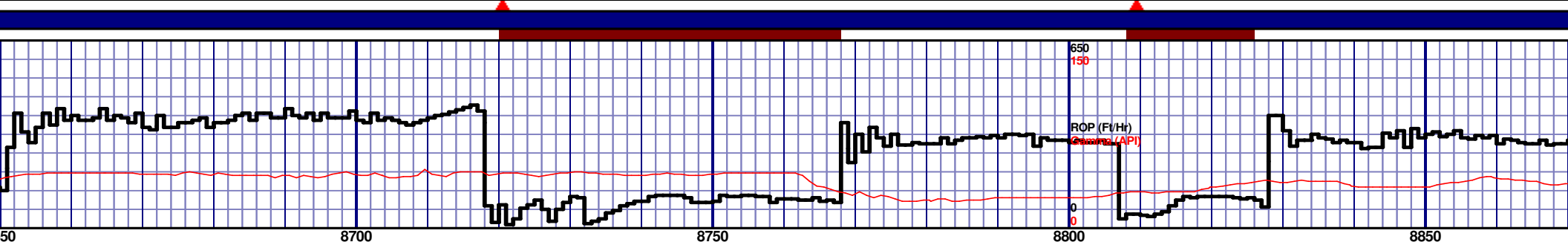
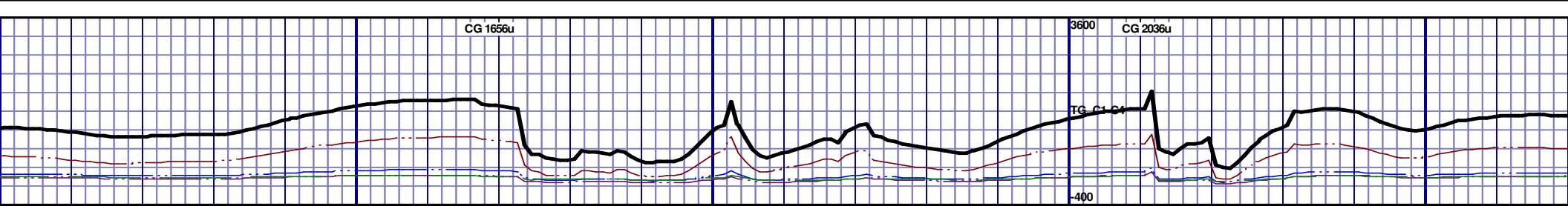


6500 TVD					NIOBRARA C CHALK 8107' MD 6760' TVD					6500 TVD				
6725					6725					6725				
6950					6950					6950				
BLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR					8000'-8050': MRL: 40%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR					8050'-8100': MRL: 46%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR				
8000'-8050': MRL: 40%: DRKGY - MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, 1% YLW FLUOR, IMMED BLUE STRM CUT, YLW RING CUT, NO ODOR					8100'-8150': CHLK: 54%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING					8150'-8200': CHLK: 60%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING				
8200'-8250': C					8200'-8250': C					8200'-8250': C				

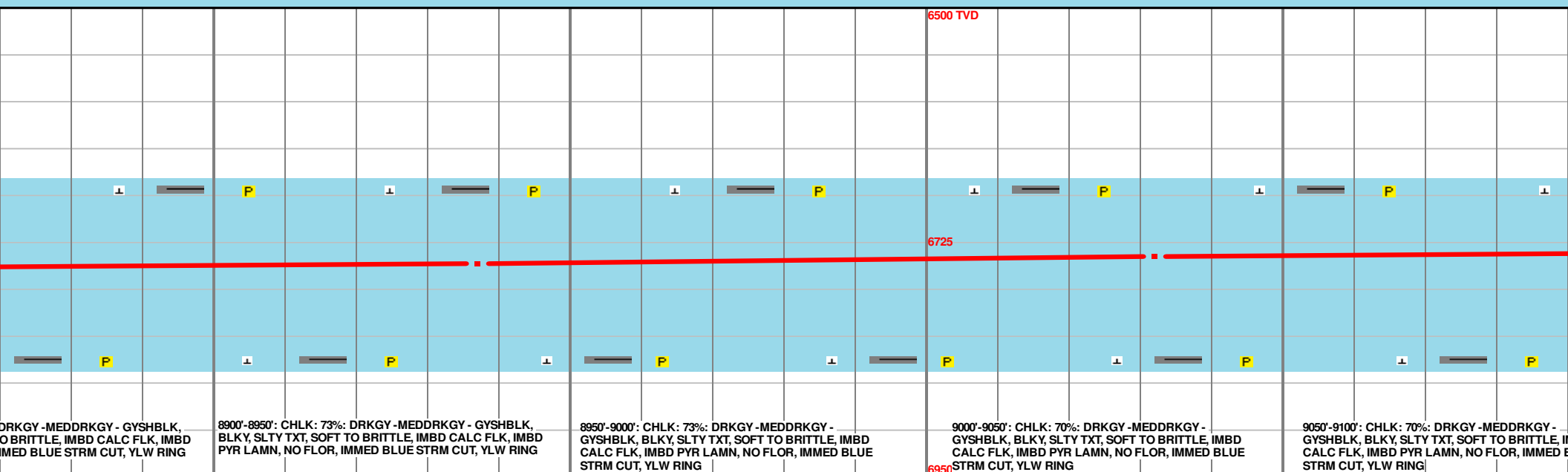
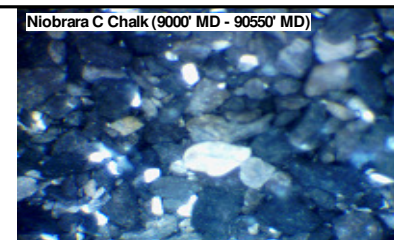
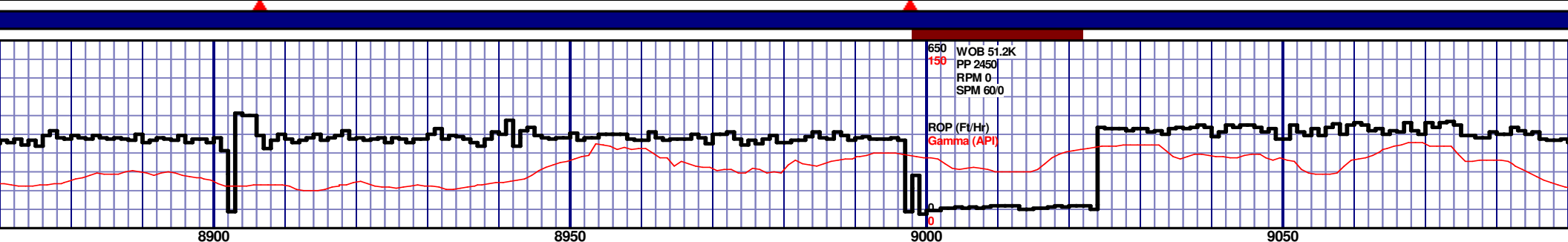
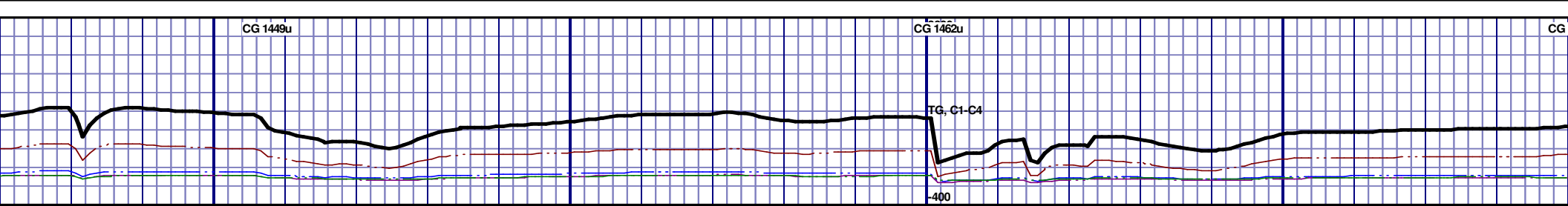


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INC 89.9 AZ 356.4
VS 1641.81

MD 8365 TVD 6756.97
INC 89.6 AZ 356.8
VS 1736.17

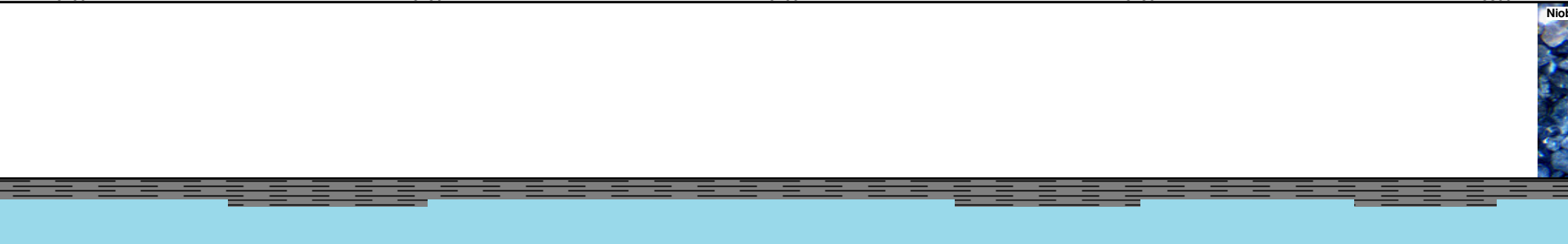
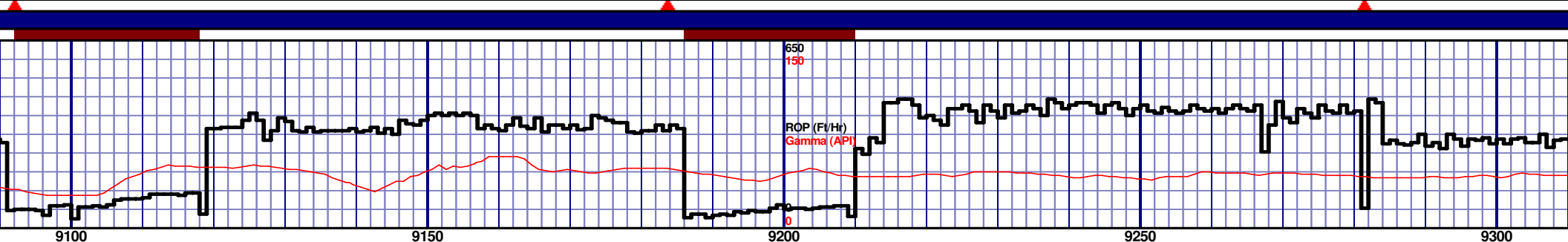


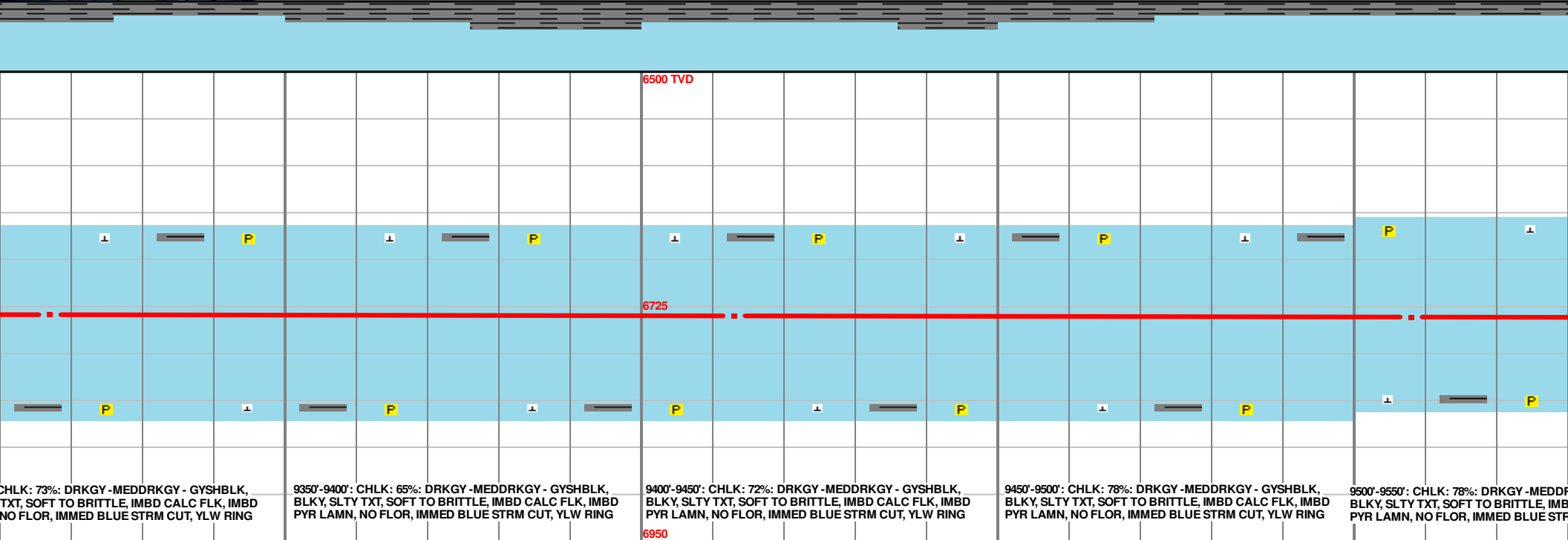
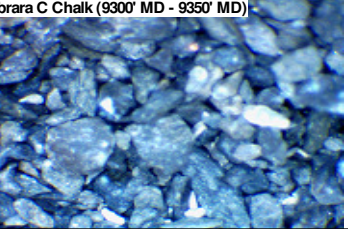
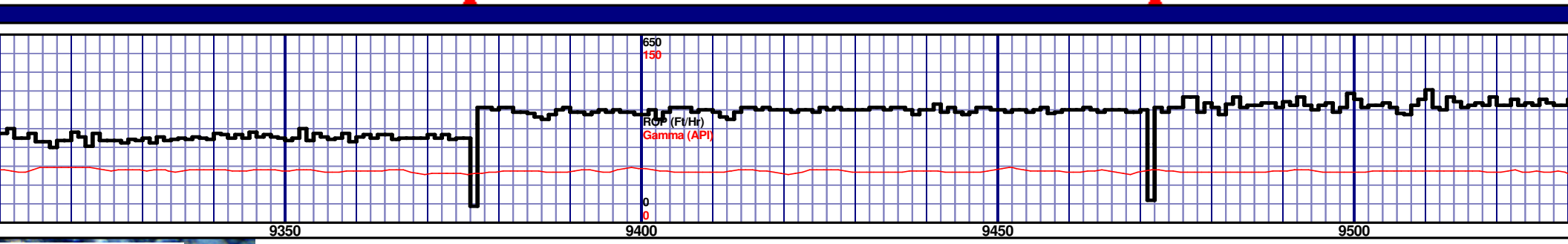
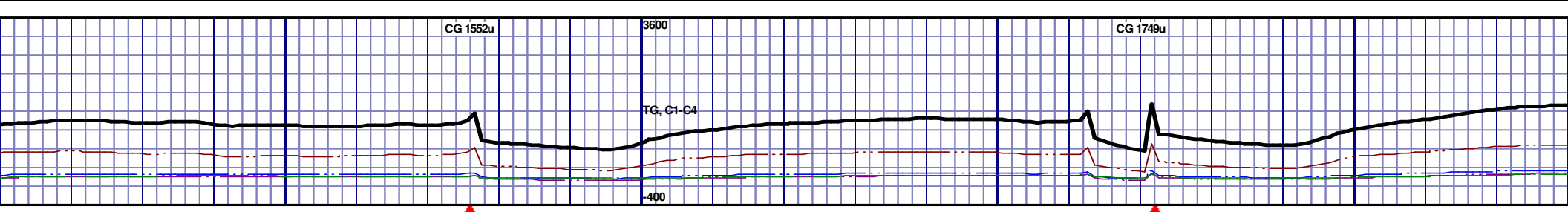
<p>8650'-8700': CHLK: 63%; DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING</p>					<p>8700'-8750': CHLK: 60%; DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING</p>					<p>8750'-8800': CHLK: 60%; DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING</p>					<p>8800'-8850': CHLK: 55%; DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING</p>					<p>8850'-8900': CHLK: 60%; DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING</p>				

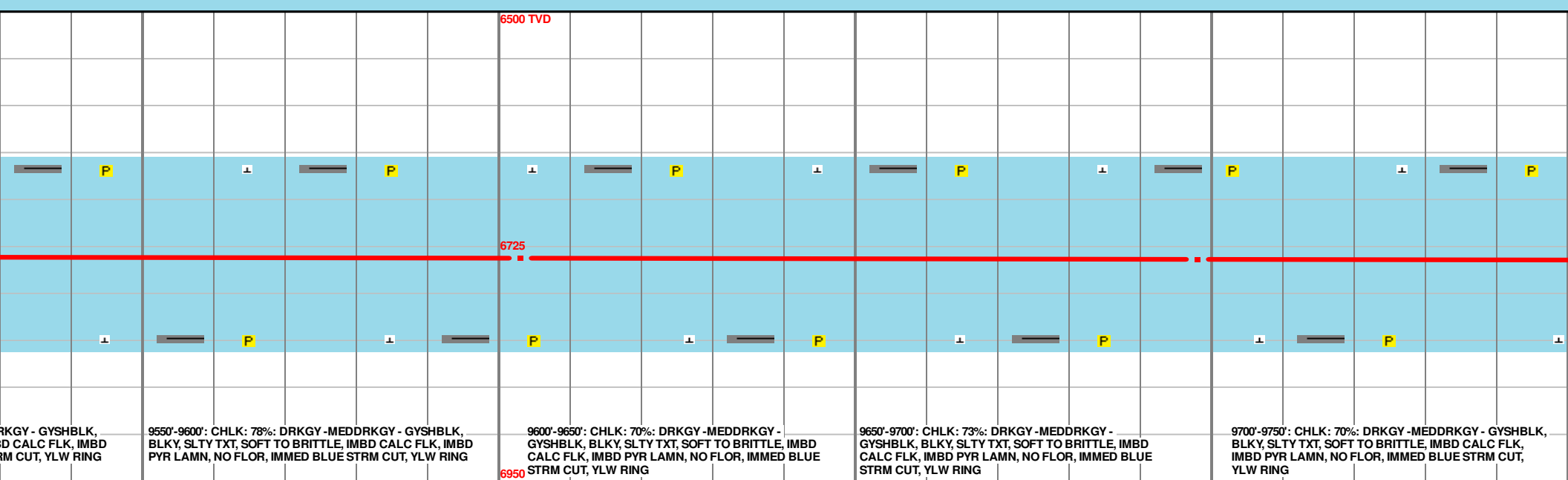
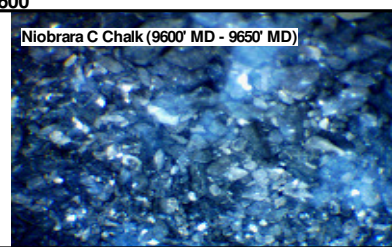
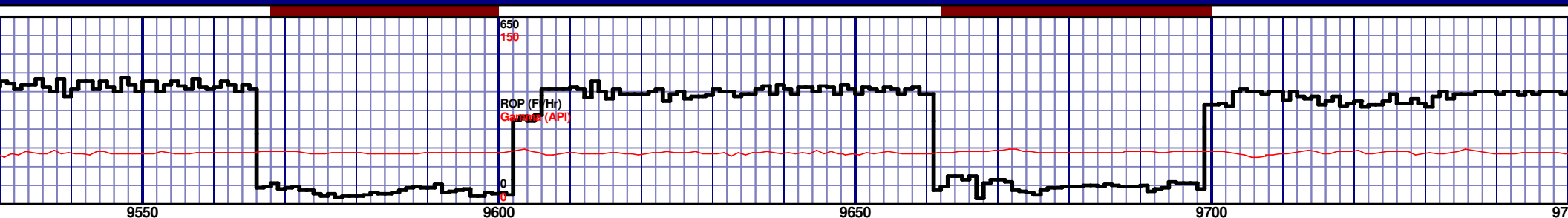
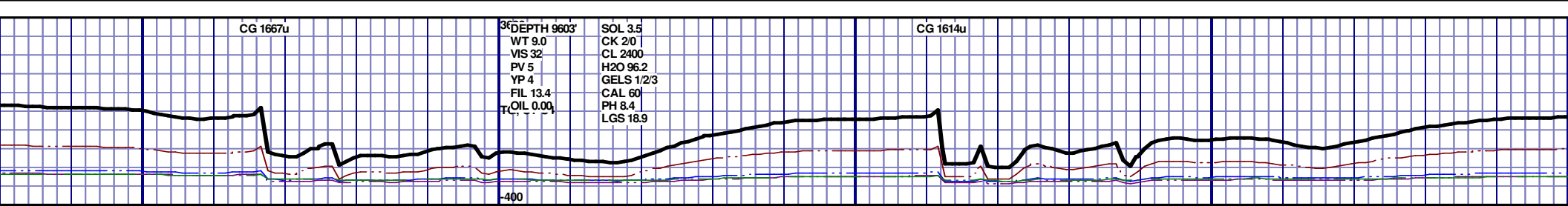


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INC 93.3 AZ 0.4
VS 2300.28

MD 9032 TVD 6739.01
INC 93.8 AZ 1.8
VS 2393.31

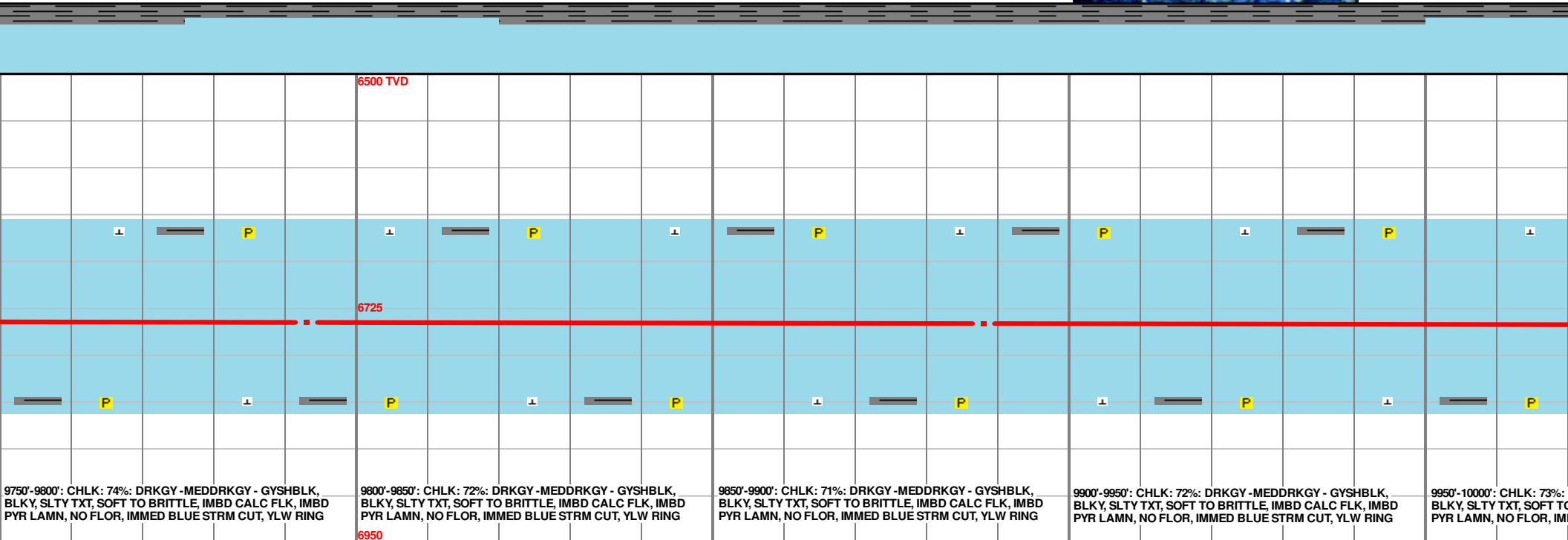
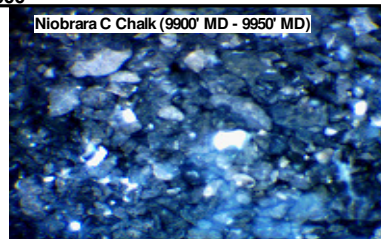
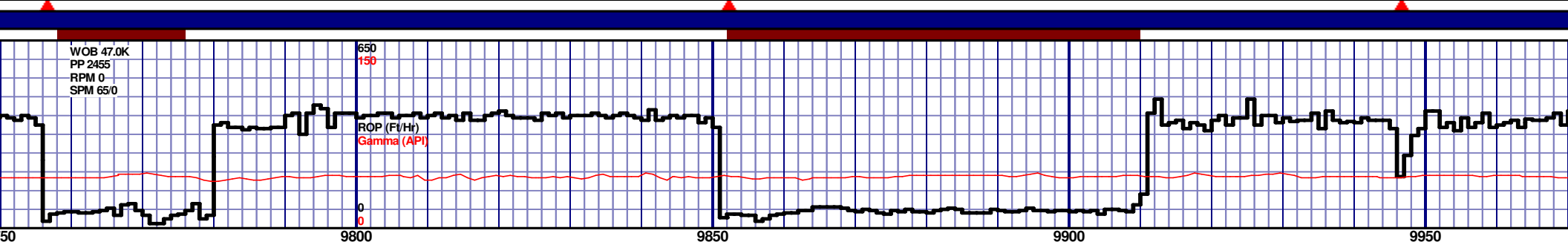
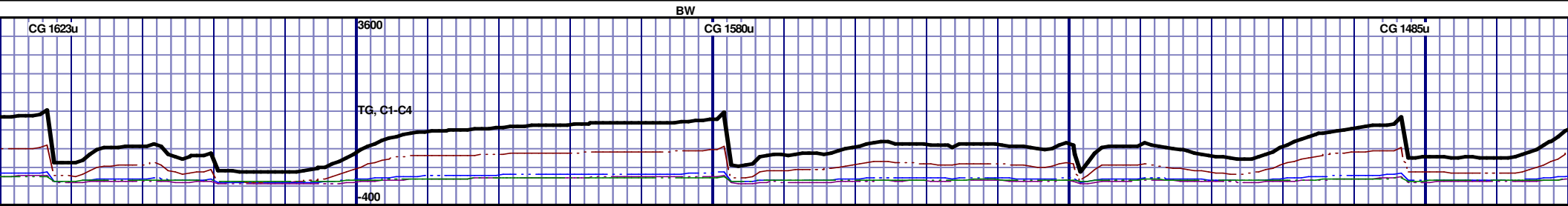






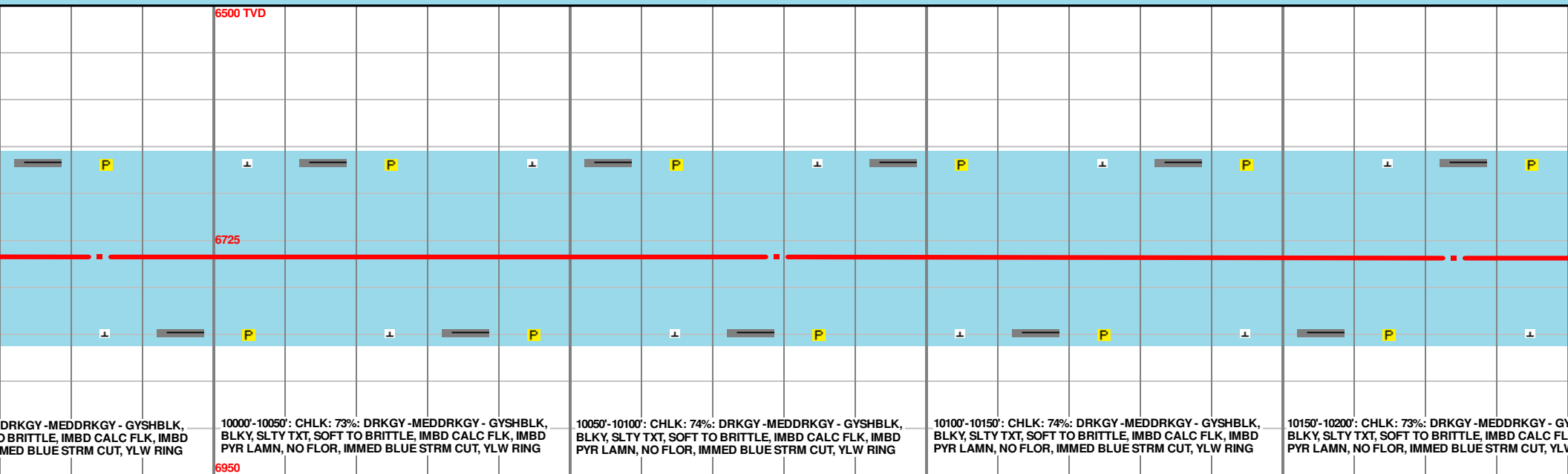
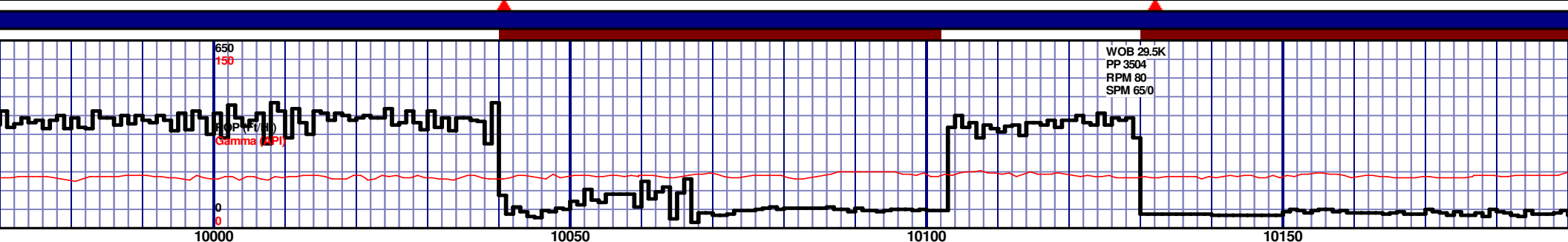
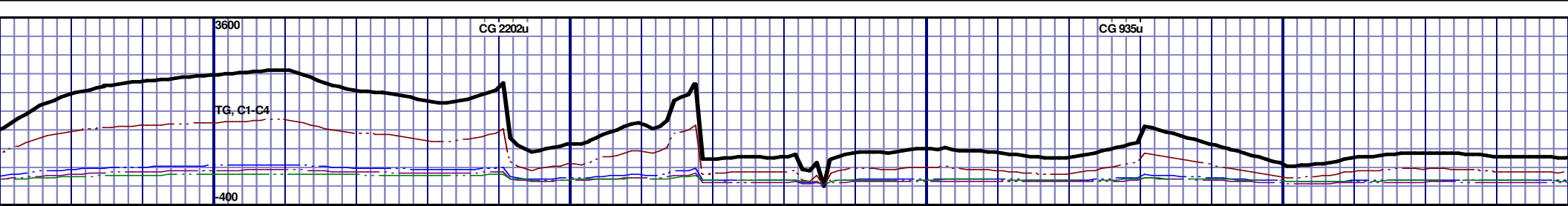
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INC 89 AZ 4.1
VS 2950.74

MD 9698 TVD 6737.7
INC 89 AZ 2.4
VS 3043.19



MD 9793 TVD 6739.03
INC 89.4 AZ 2.4
VS 3135.95

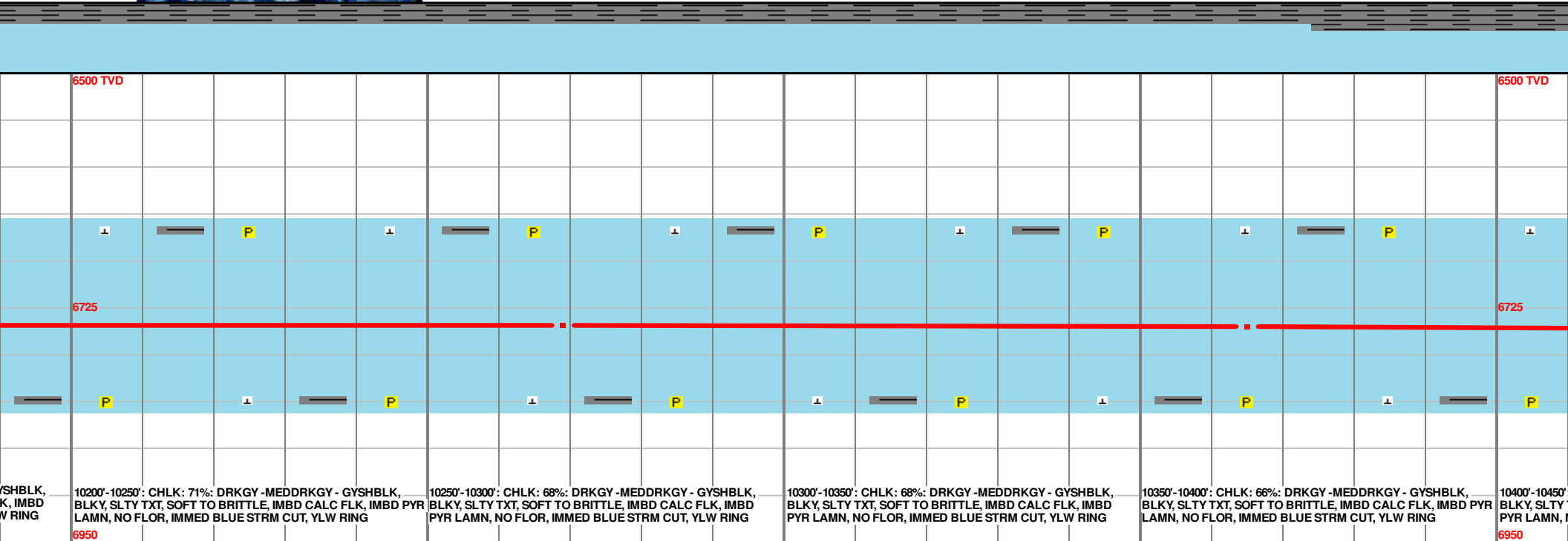
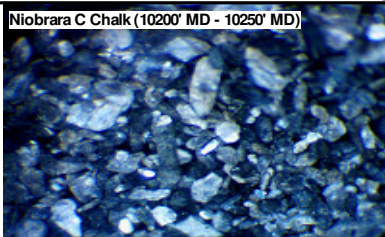
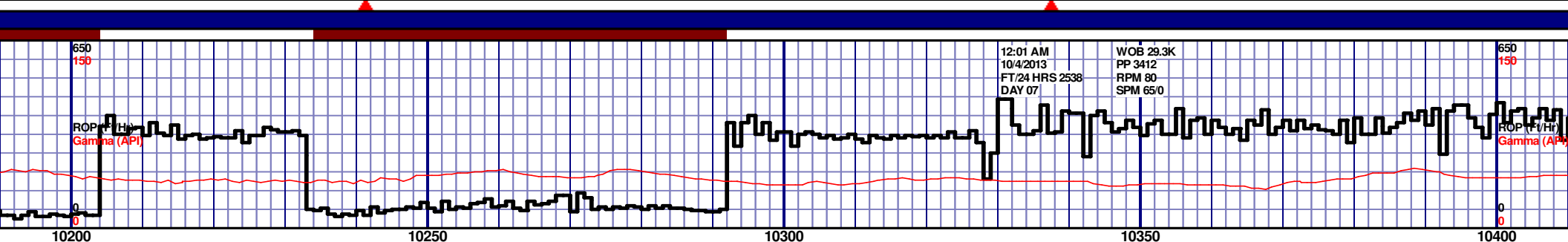
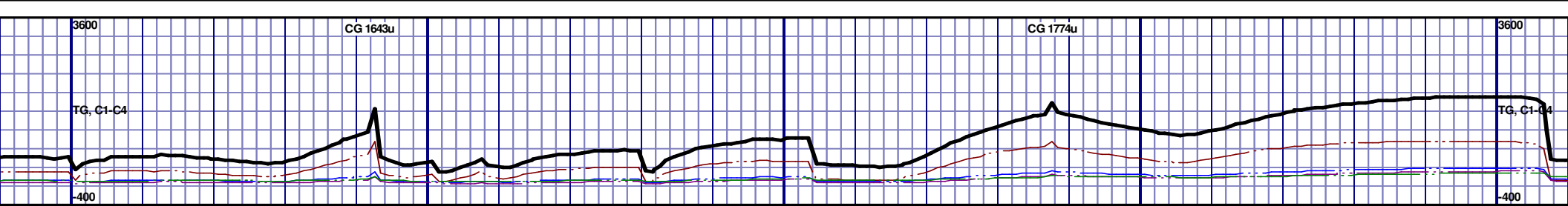
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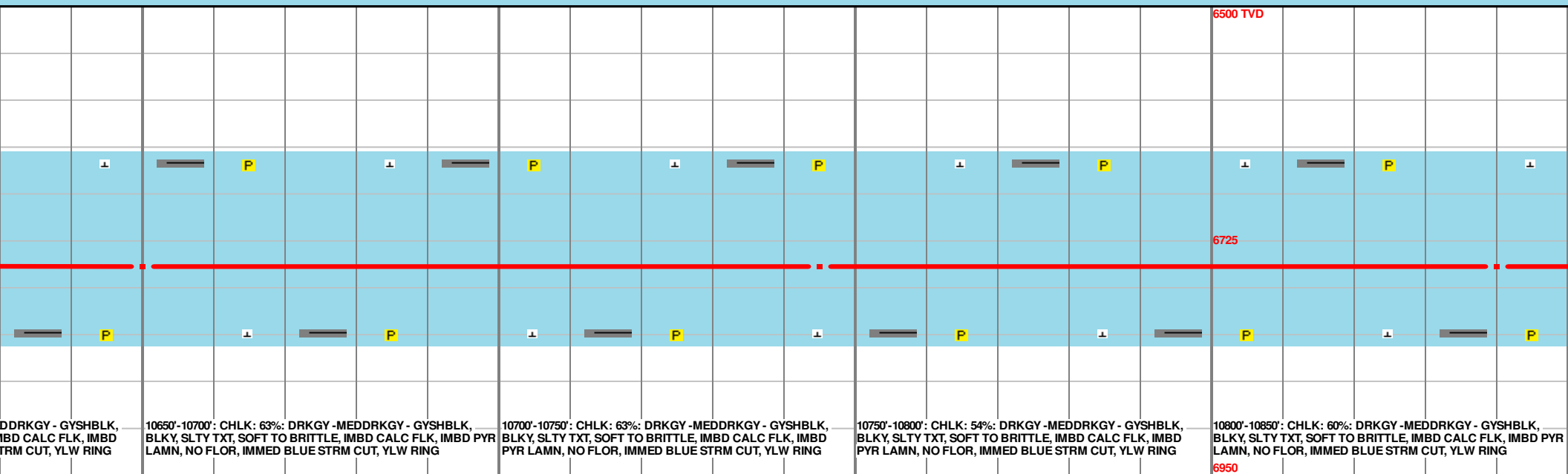
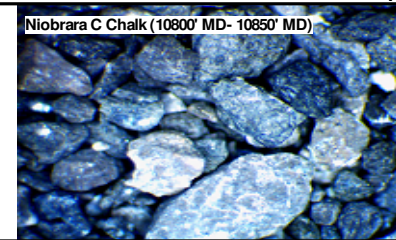
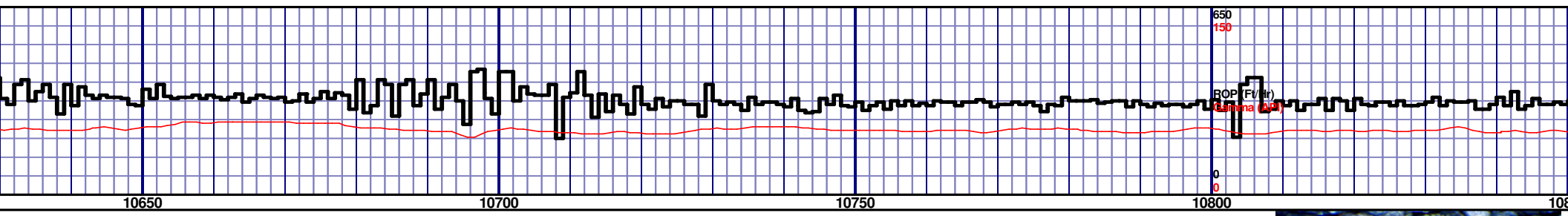


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MD 10079 TVD 6740.94
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VS 3416.73

MD 10174 TVD 6741.8
INC 89.2 AZ 359.4
VS 3510.17





MD 10650 TVD 6749.49
INC 89.2 AZ 353.6
VS 3983.99

MD 10745 TVD 6750.23
INC 89.9 AZ 353.6
VS 4078.8

MD 10840 TV
INC 90.1 AZ :
VS 4173.72

