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### Customer Information

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

**Geologist:** Teresa Malesardi  
Noble Energy Inc.

### Mud Logging Details

**Logger:** Brian Whitfield &  
Tom Denney

**Log Interval:** 6700' MD to 11211' MD

**Start Date:** November 11, 2013

**Release Date:** November 14, 2013

### Well Information

**Well Name:** Crow Creek State  
AC36-72HN HZ

**Location:** 36-7N-63W  
270' FSL, 1388' FEL

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

**Drilling Rig:** H&P 277

**Total Depth:** 11211' MD

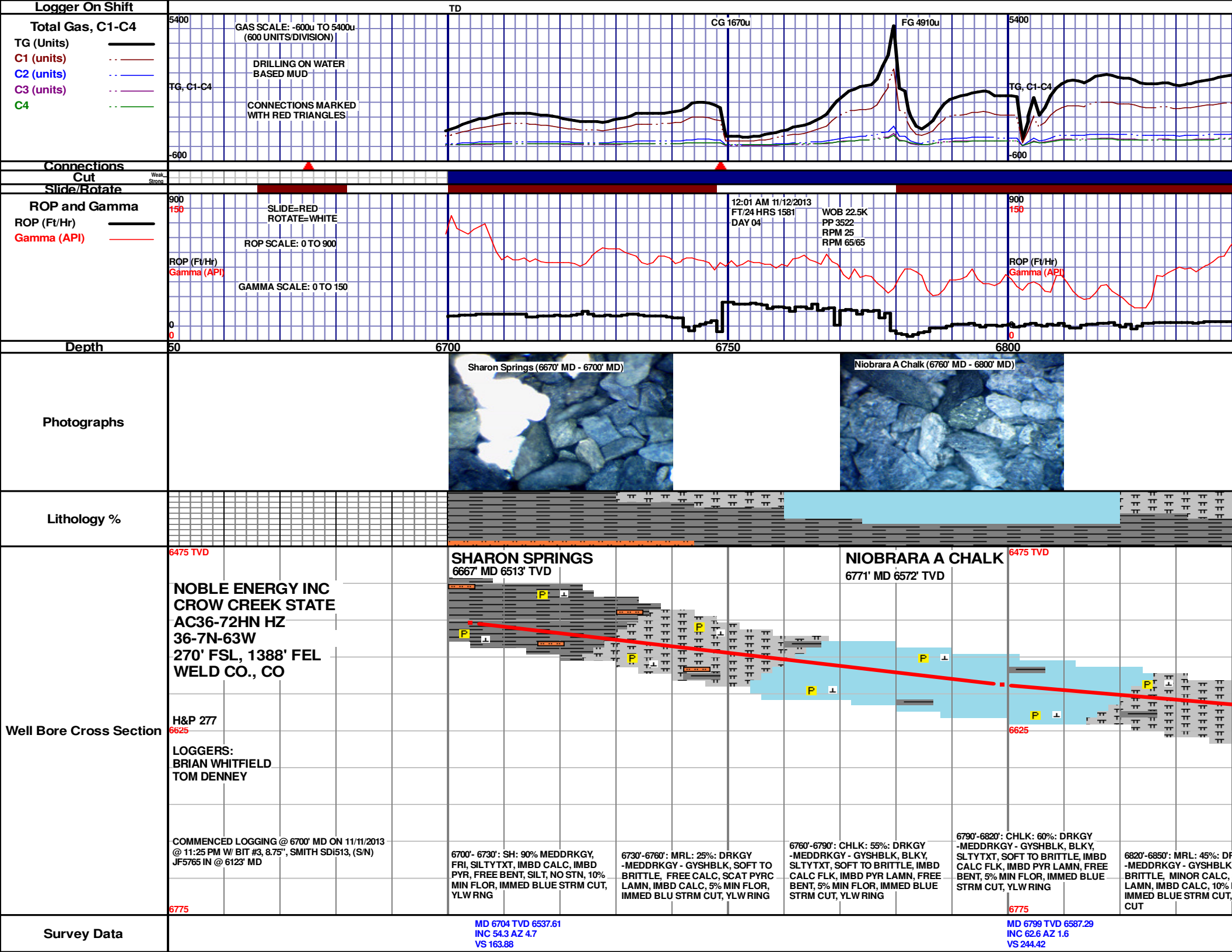
**TD Date:** November 14, 2013

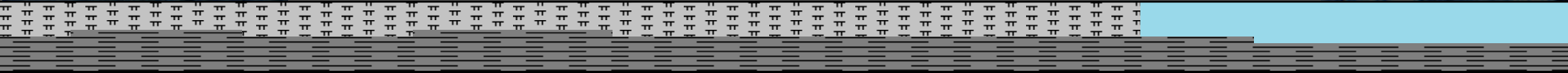
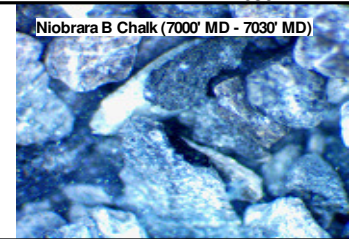
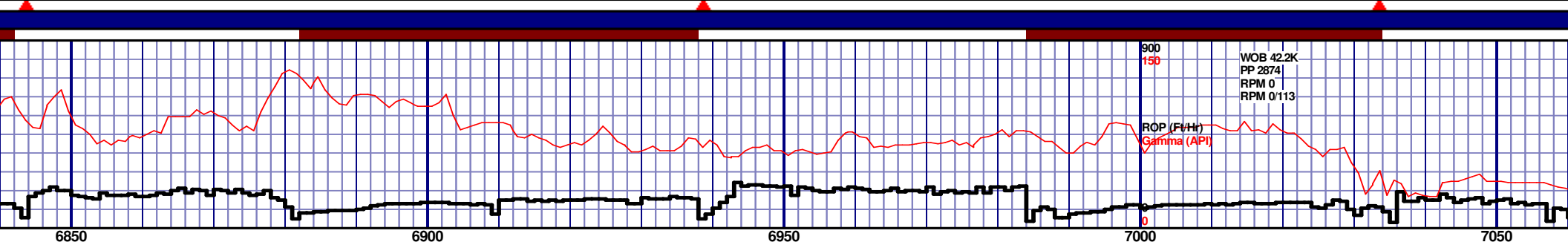
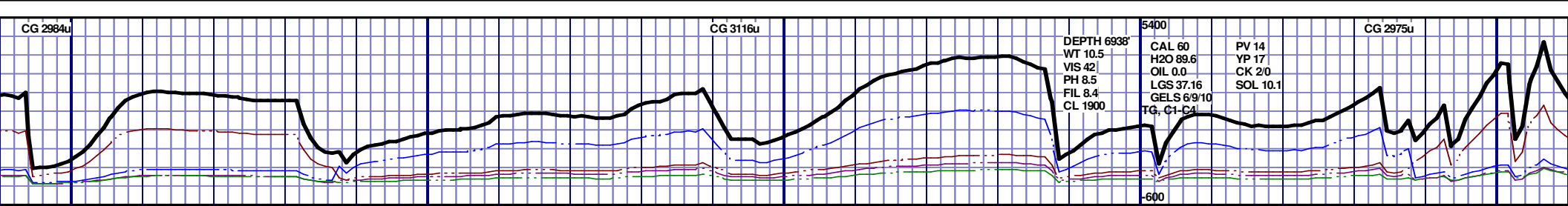
**Formation:** Niobrara B Chalk

**KB Elevation:** 4874'

**GR Elevation:** 4850'

**API Number:** 05-123-37418-0000



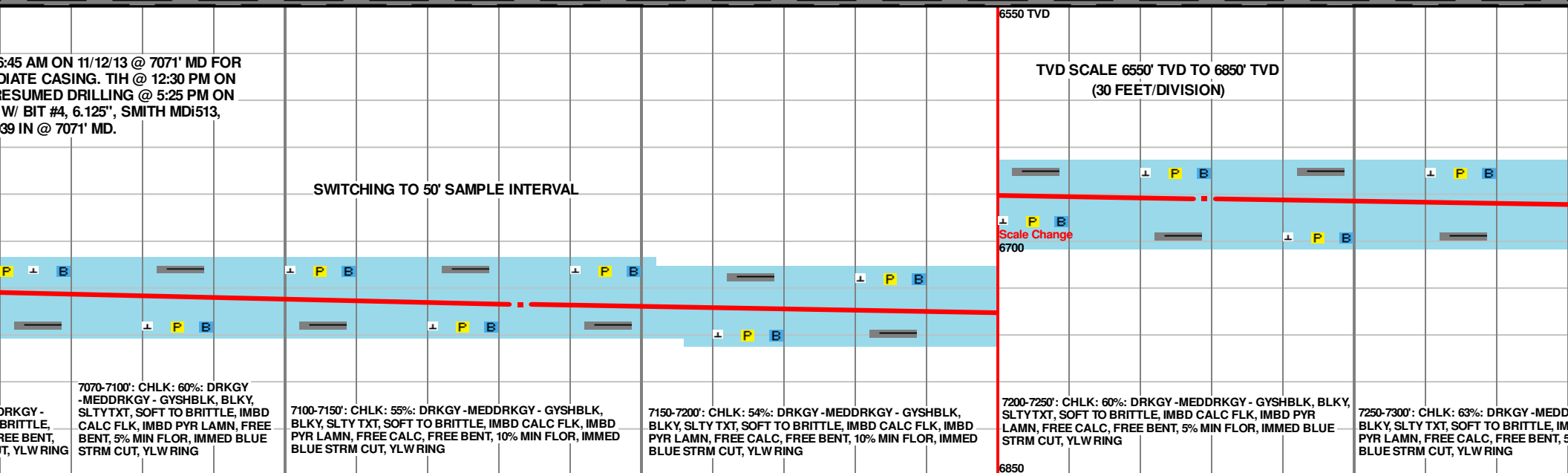
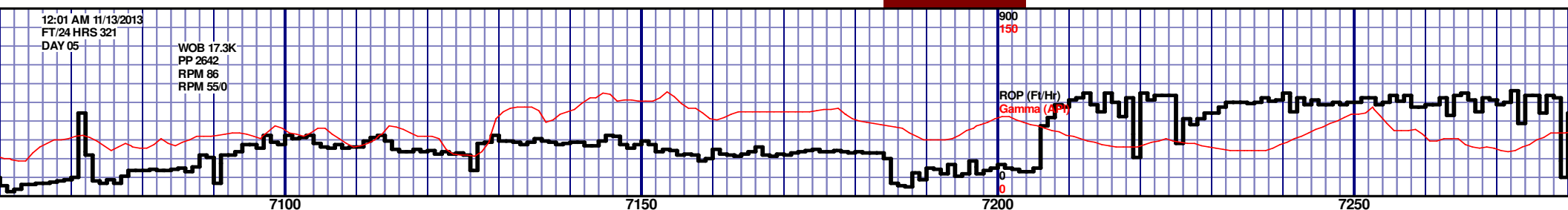
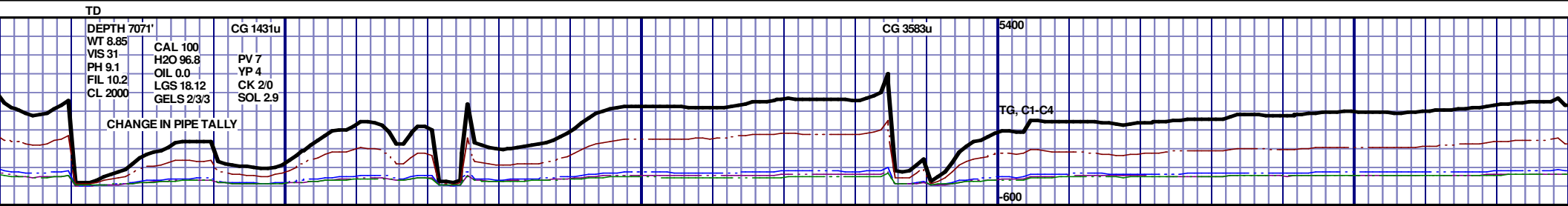


NIOBRARA A MARL						NIOBRARA B CHALK	
6841' MD 6003' TVD						7025' MD 6654' TVD	TOOH @ 6 INTERME 11/13/13. R 11/13/2013 (S/N) JH09
6850'-6880': MRL: 42%: DRKGY -MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, MINOR CALC, SCAT PYR LAMN, IMBD CALC, 10% MIN FLOR, IMMED BLUE STRM CUT, YLW RING CUT	6880'-6910': MRL: 45%: DRKGY -MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, MINOR CALC, SCAT PYR LAMN, IMBD CALC, 10% MIN FLOR, IMMED BLUE STRM CUT, YLW RING CUT	6910'-6940': MRL: 45%: DRKGY -MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, MINOR CALC, SCAT PYR LAMN, IMBD CALC, 10% MIN FLOR, IMMED BLUE STRM CUT, YLW RING CUT	6940'-6970': MRL: 50%: DRKGY -MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, MINOR CALC, SCAT PYR LAMN, IMBD CALC, 10% MIN FLOR, IMMED BLUE STRM CUT, YLW RING CUT	6970'-7000': MRL: 50%: DRKGY -MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, MINOR CALC, SCAT PYR LAMN, IMBD CALC, 10% MIN FLOR, IMMED BLUE STRM CUT, YLW RING CUT	7000'-7030': CHLK: 55%: DRKGY -MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE BENT, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING	7030'-7070': CHLK: 60%: DRKGY -MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE BENT, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING	

MD 6895 TVD 6624.92  
INC 71.2 AZ 0.7  
VS 331.95

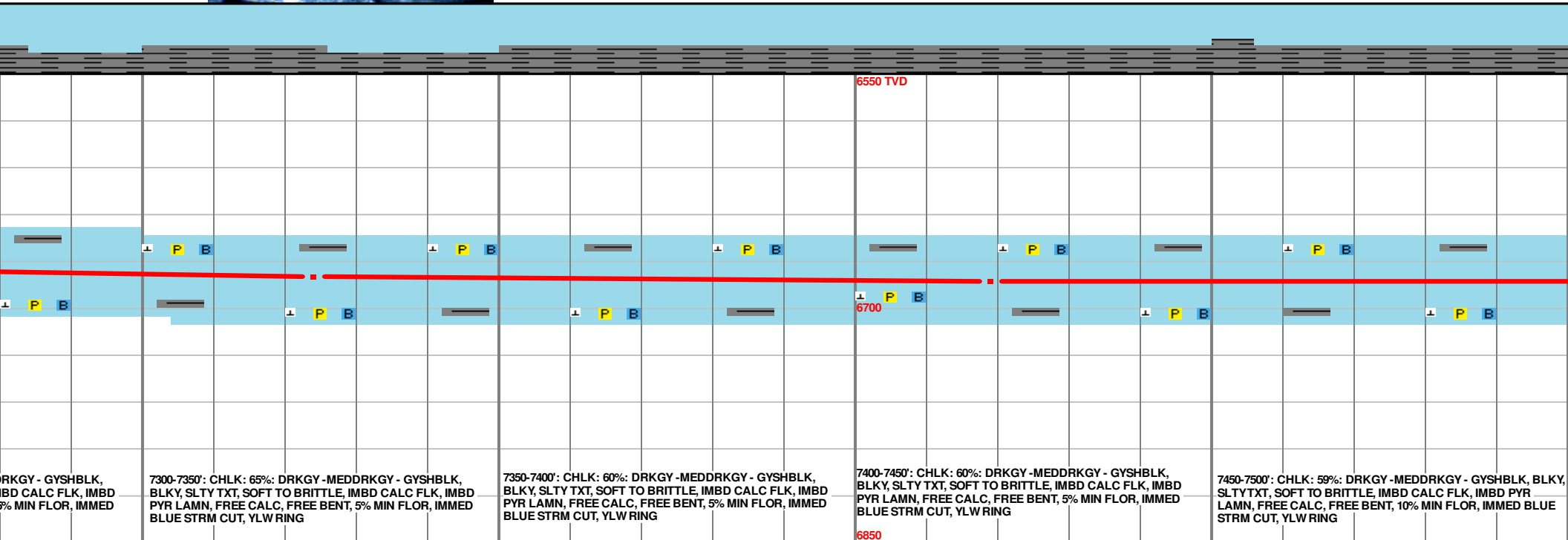
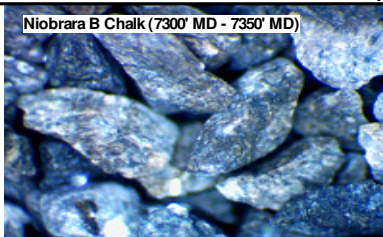
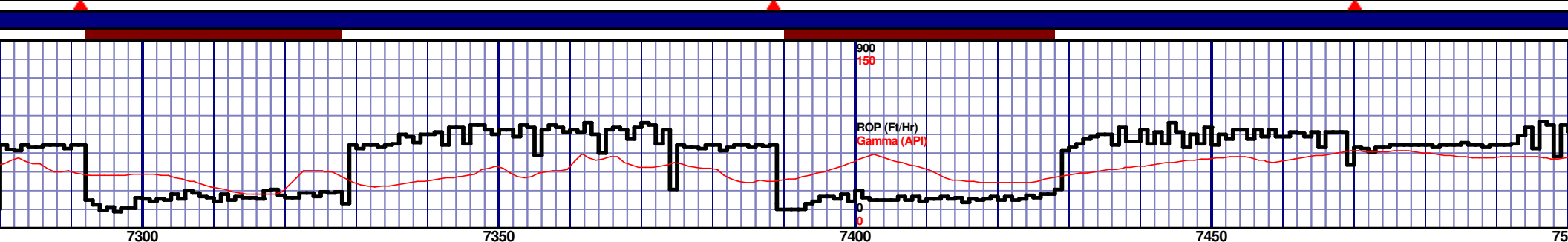
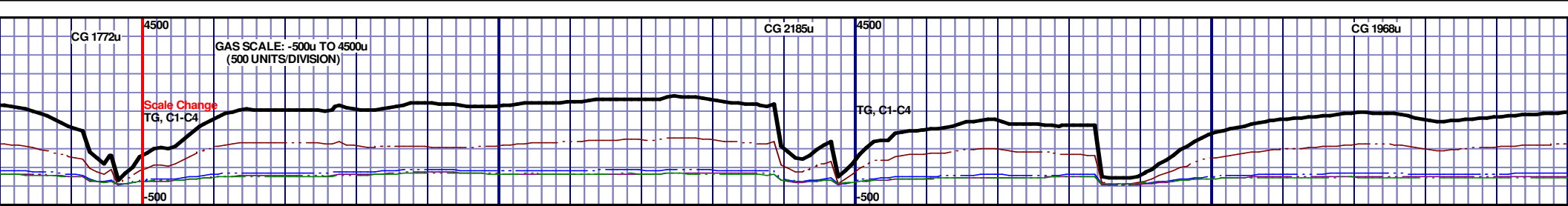
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INC 79.2 AZ 0.5  
VS 422.89

MD 7024 TVD 6654.3  
INC 83.4 AZ 0.7  
VS 456.19



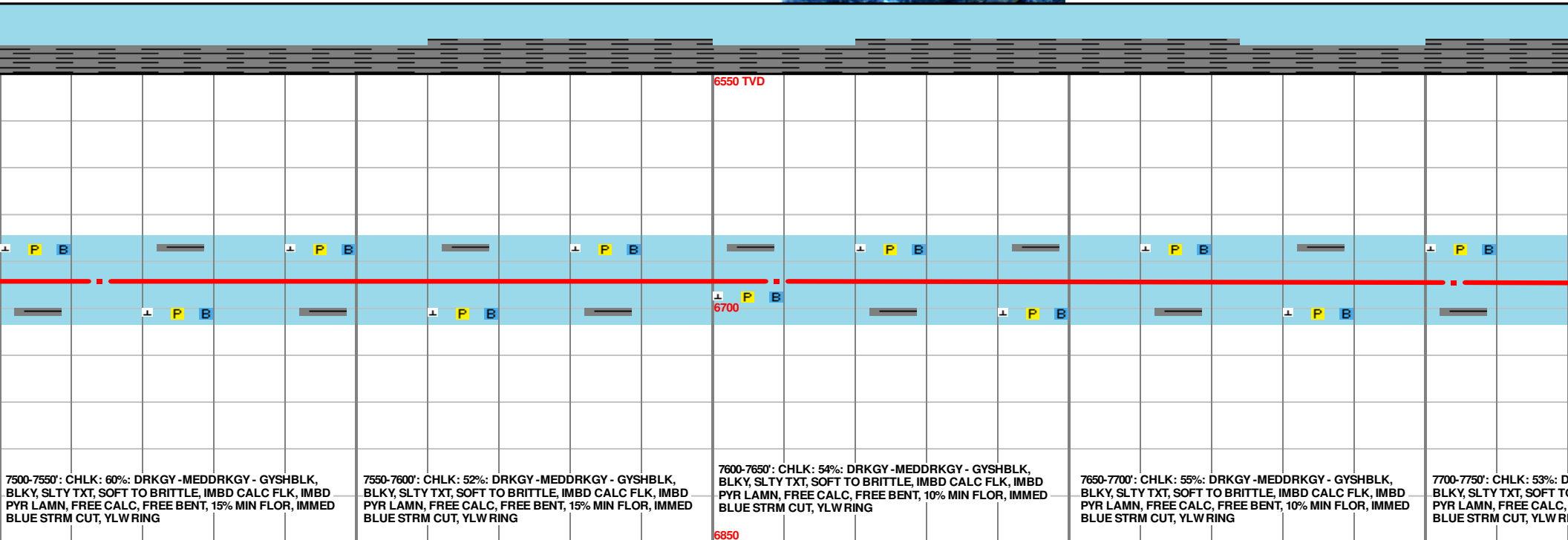
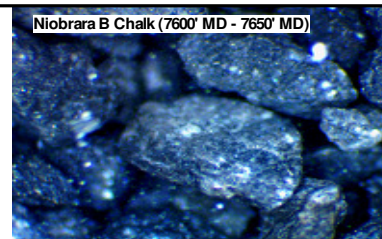
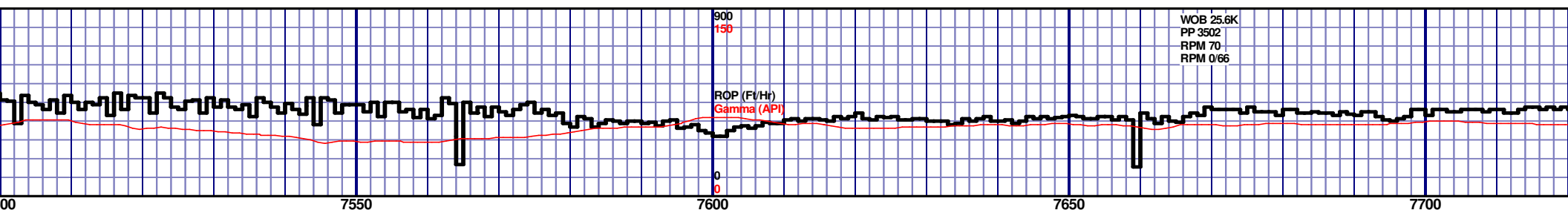
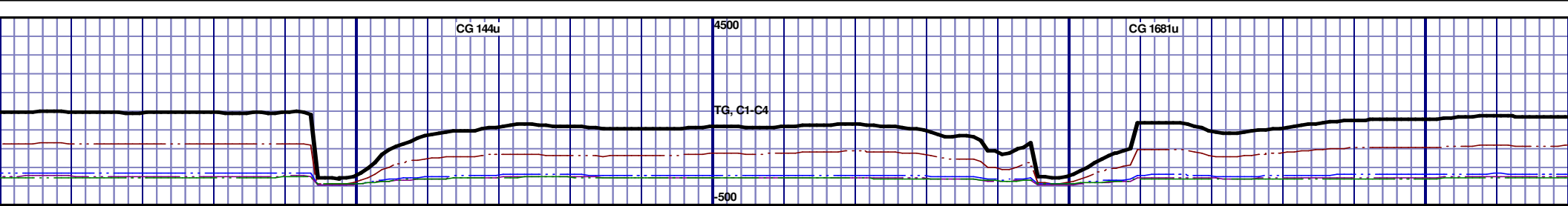
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VS 563.7

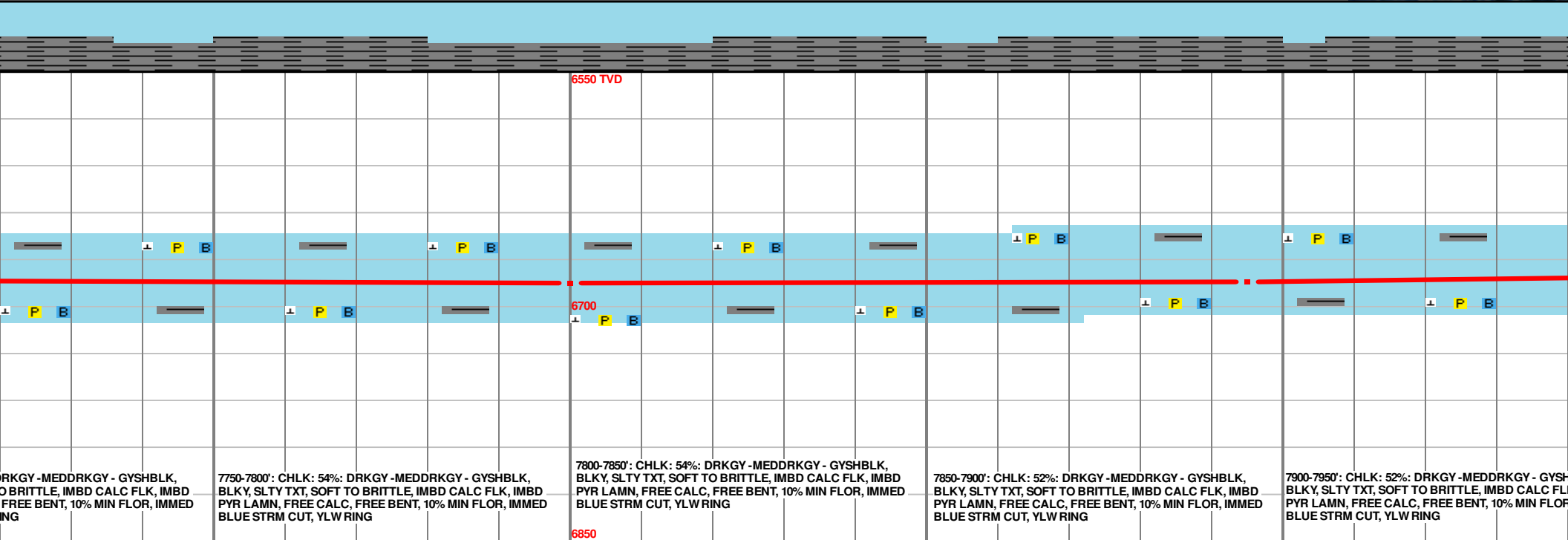
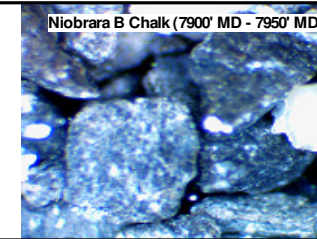
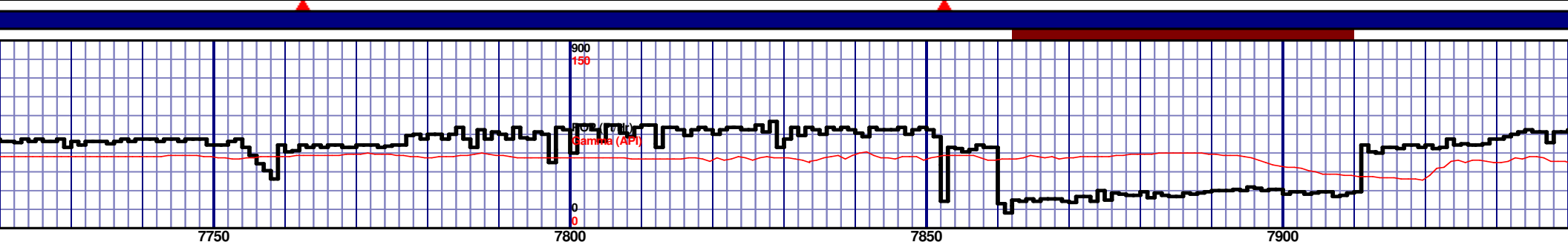
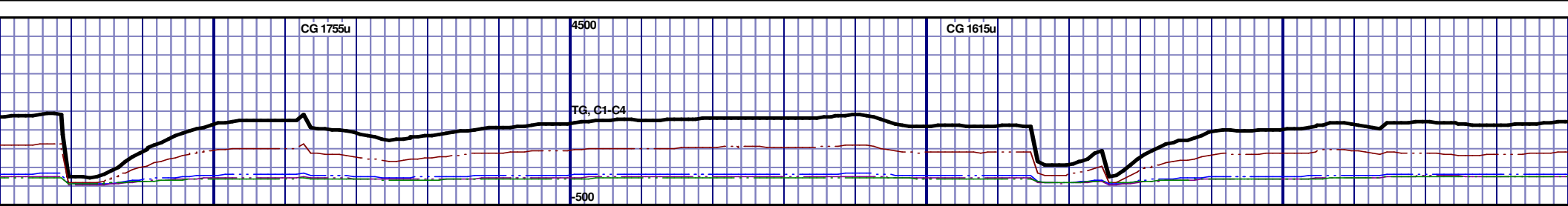
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INC 85.5 AZ 1.3  
VS 658.62

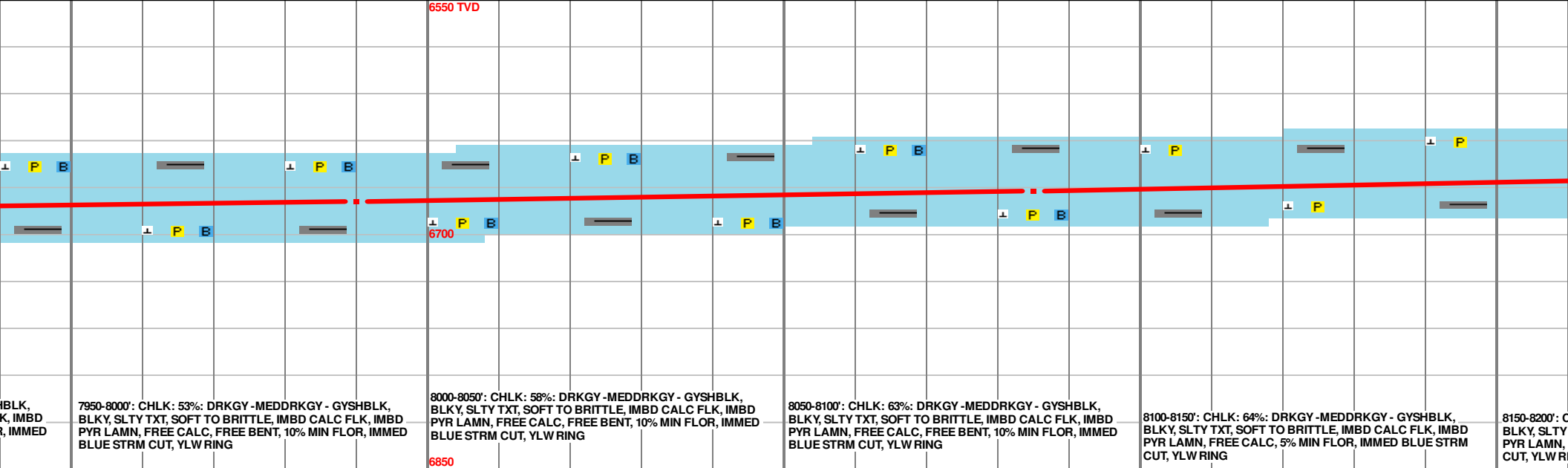
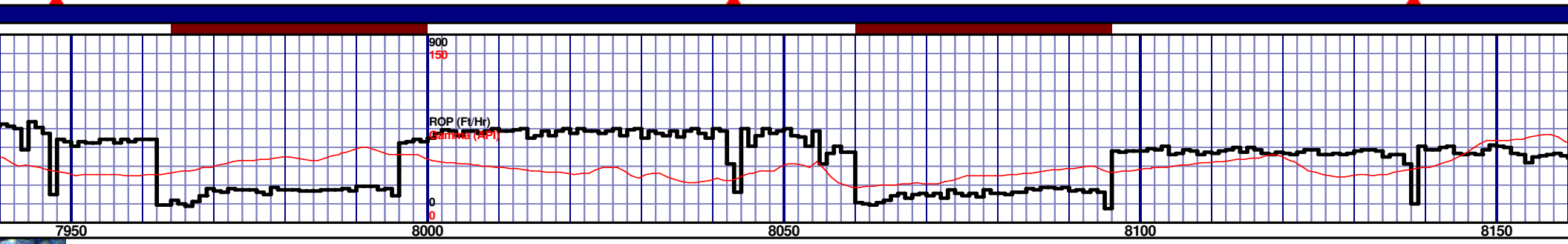
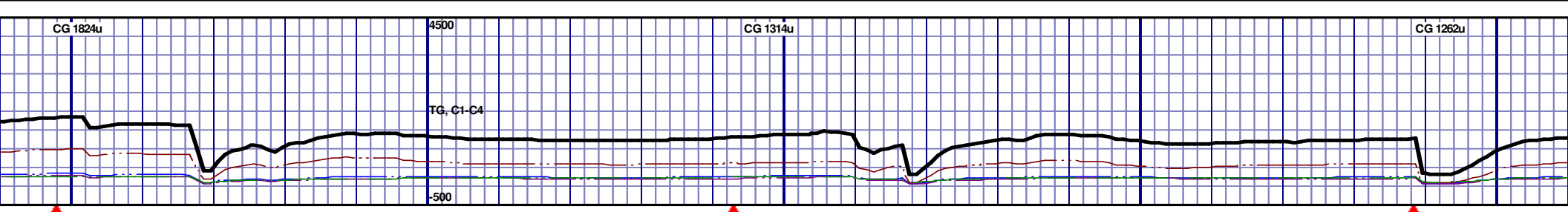


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INC 86.7 AZ 359.6  
VS 7525

MD 7419 TVD 6682.94  
INC 89 AZ 358  
VS 846.12



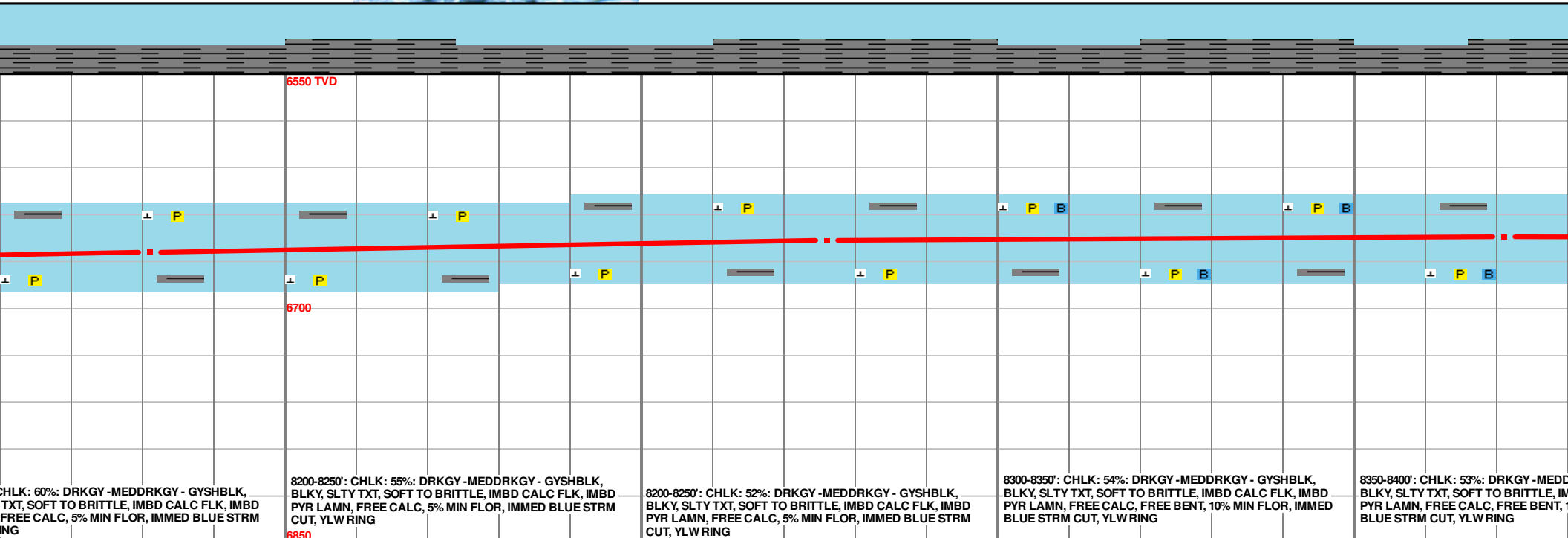
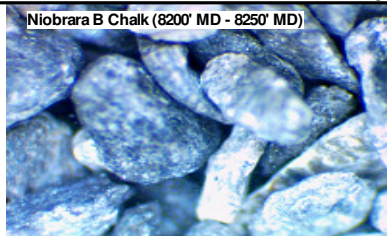
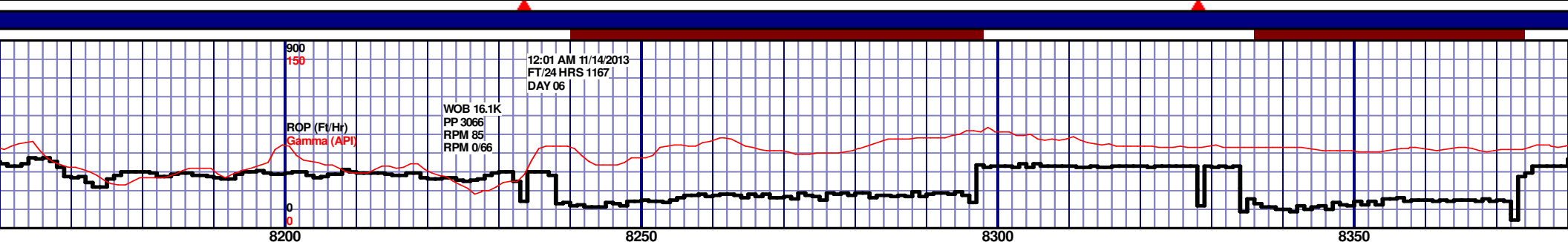
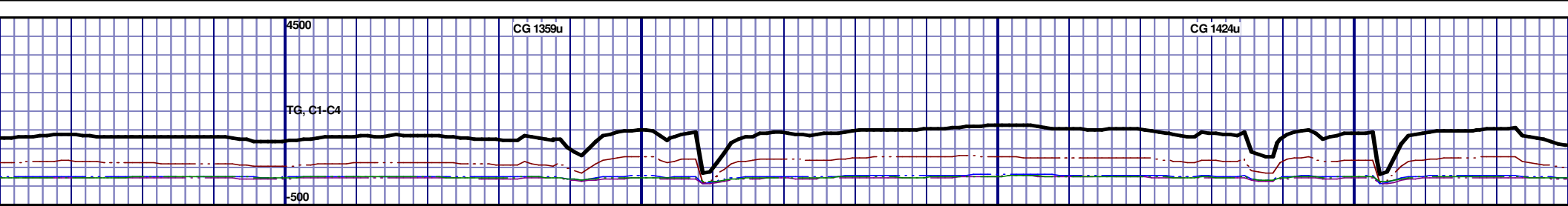




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INC 94.3 AZ 358.5  
VS 1403.22

MD 8085 TVD 6672.1  
INC 94.3 AZ 0.8  
VS 1496.86

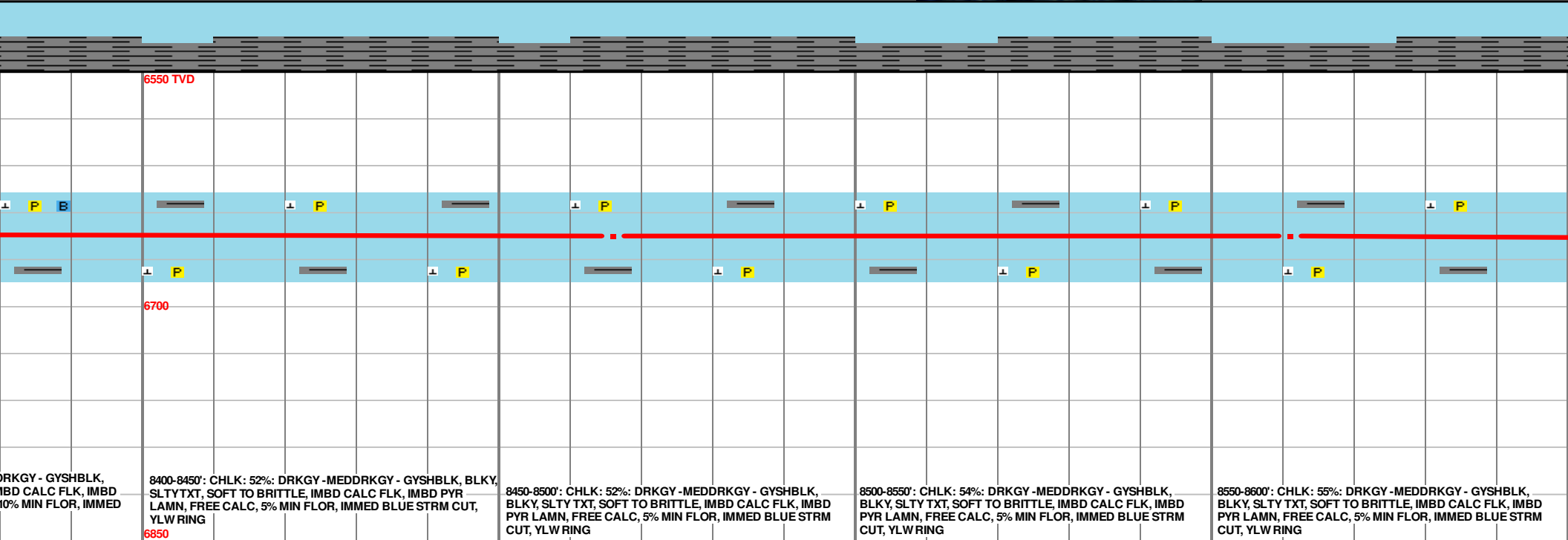
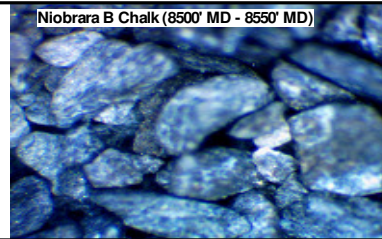
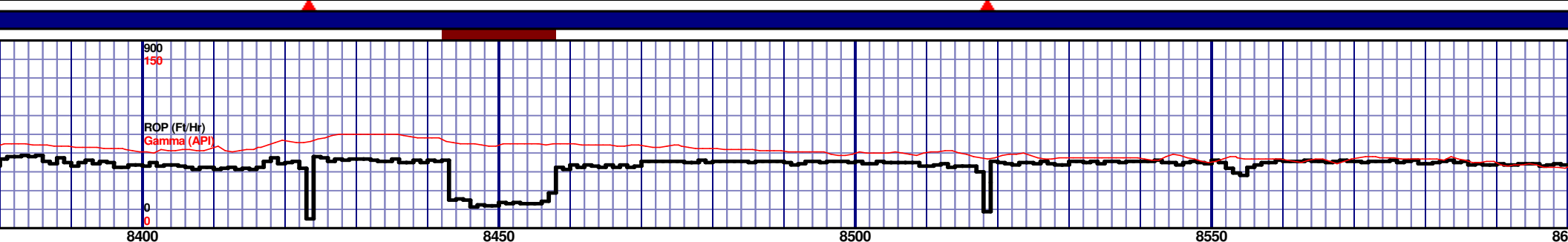
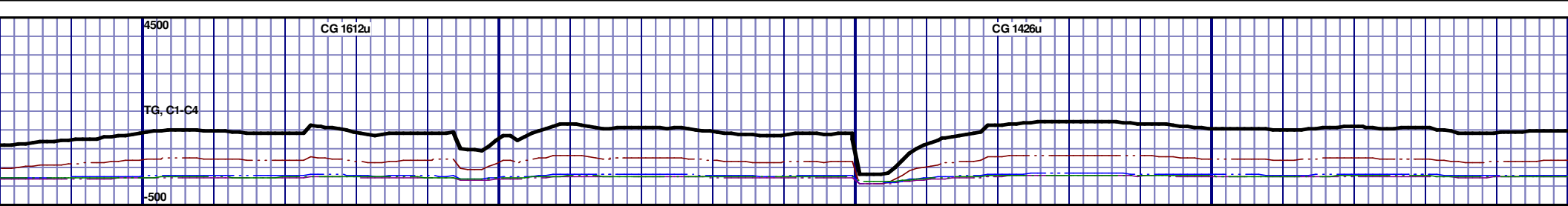


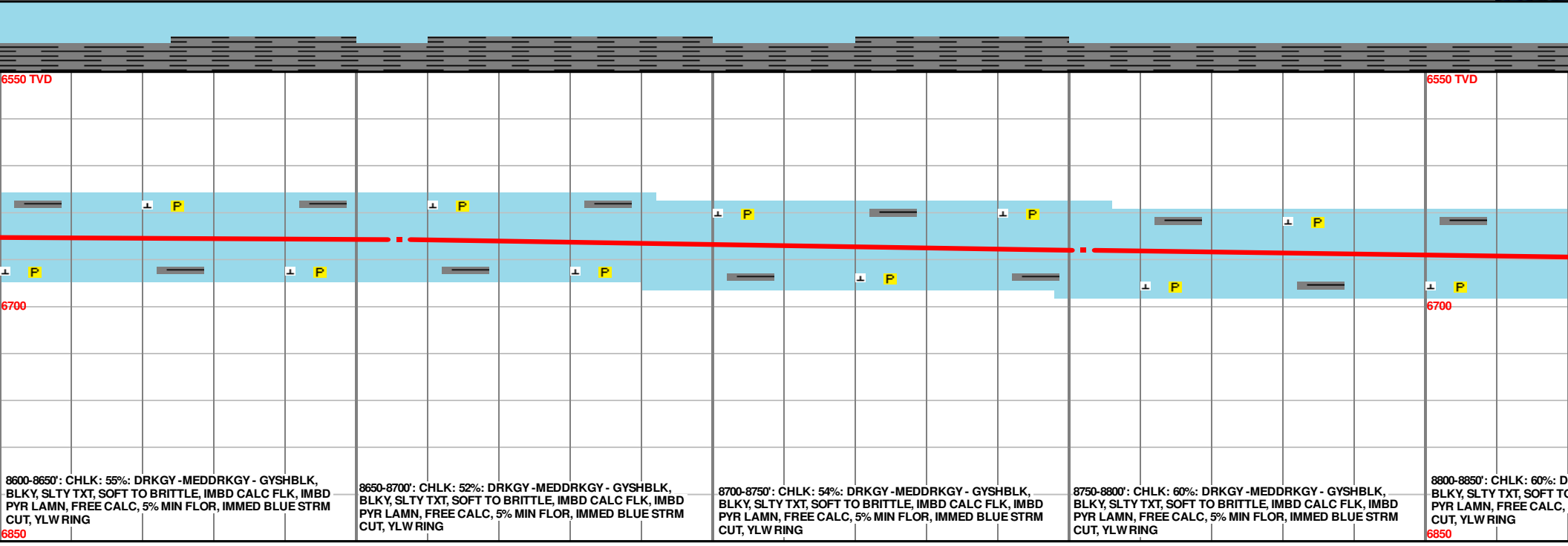
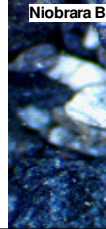
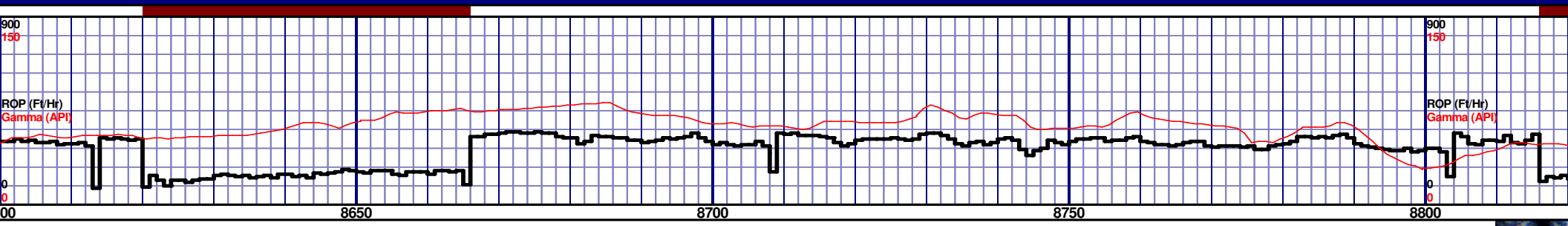
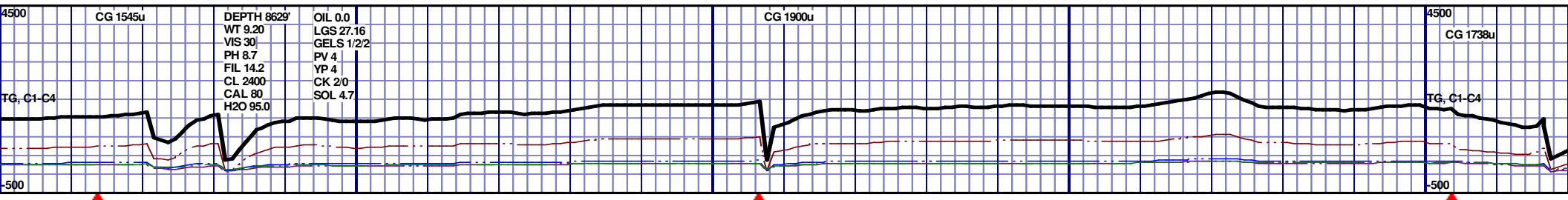


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VS 1591.67

MD 8276 TVD 6656.53  
INC 93.4 AZ 1.7  
VS 1685.64

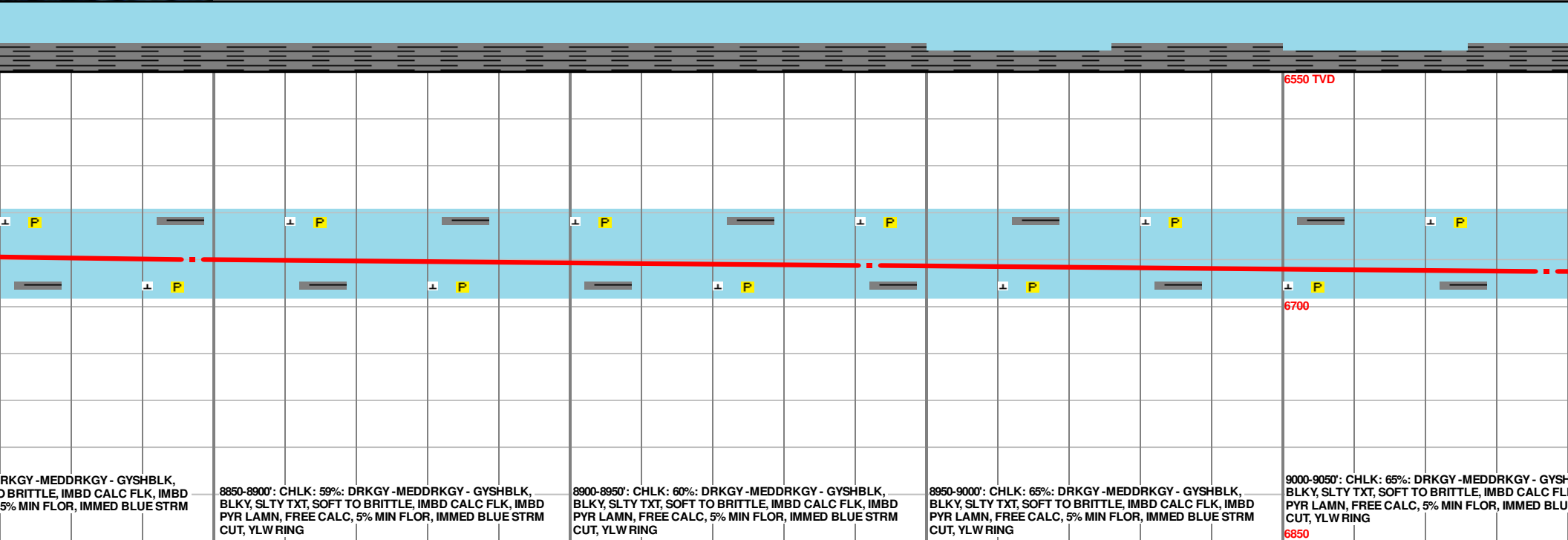
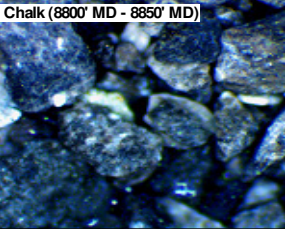
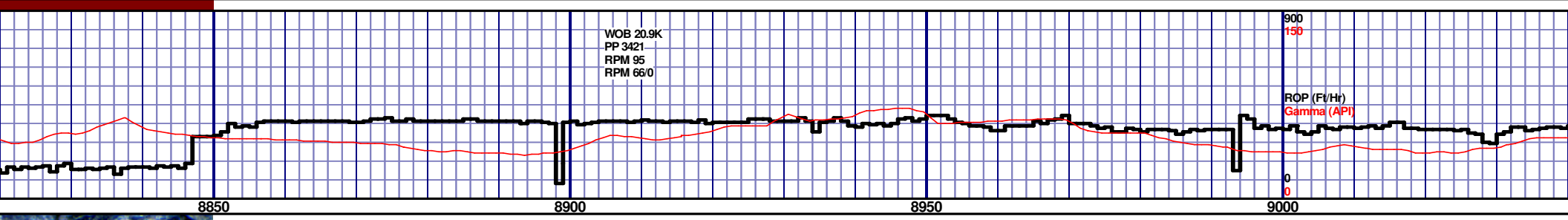
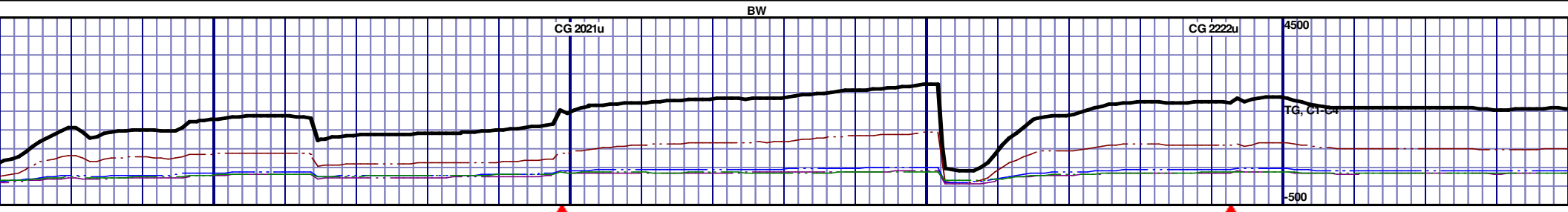
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INC 89.7 AZ 1.7  
VS 1780.04





MD 8656 TVD 6657.52  
INC 86.6 AZ 2.9  
VS 2064.09

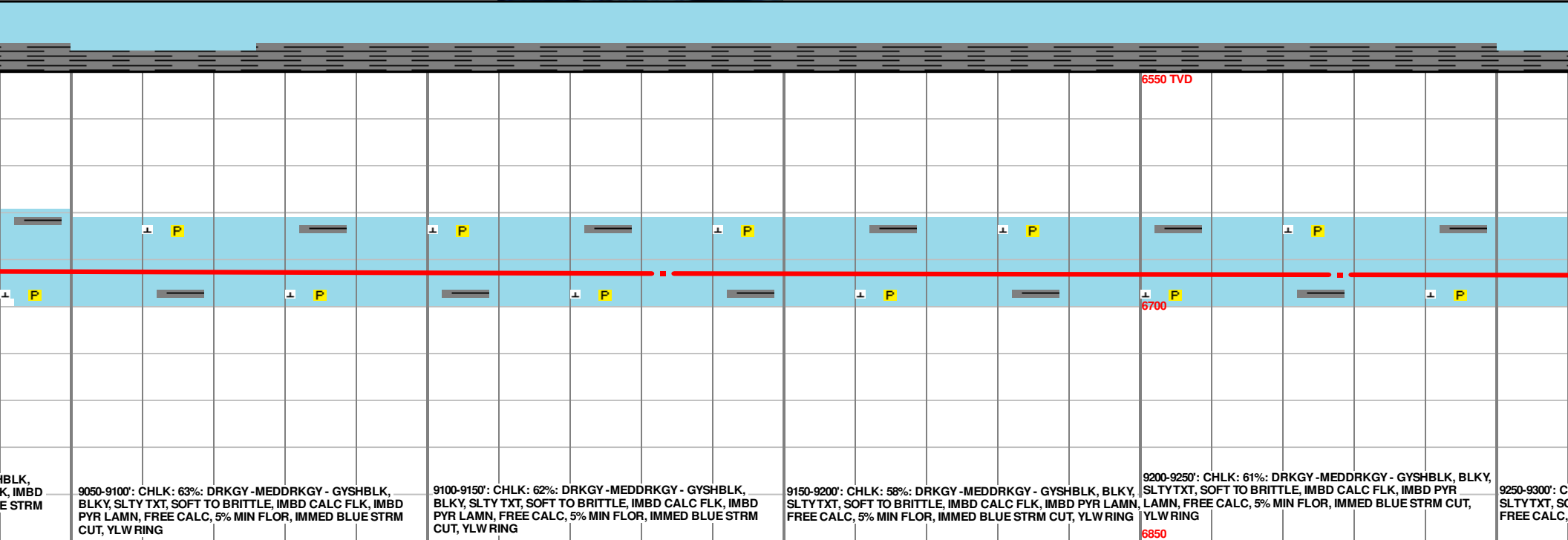
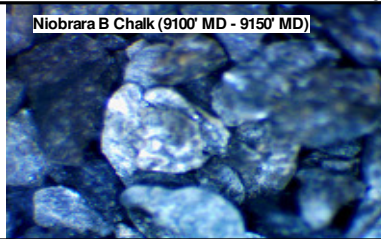
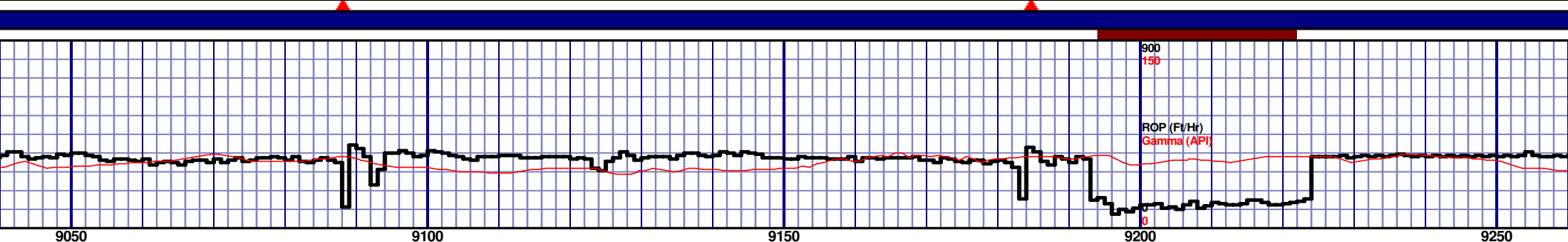
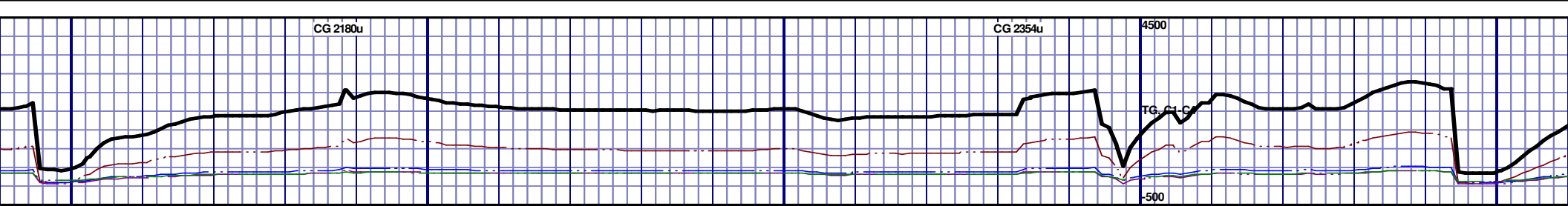
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INC 85.3 AZ 2.4  
VS 2159.38

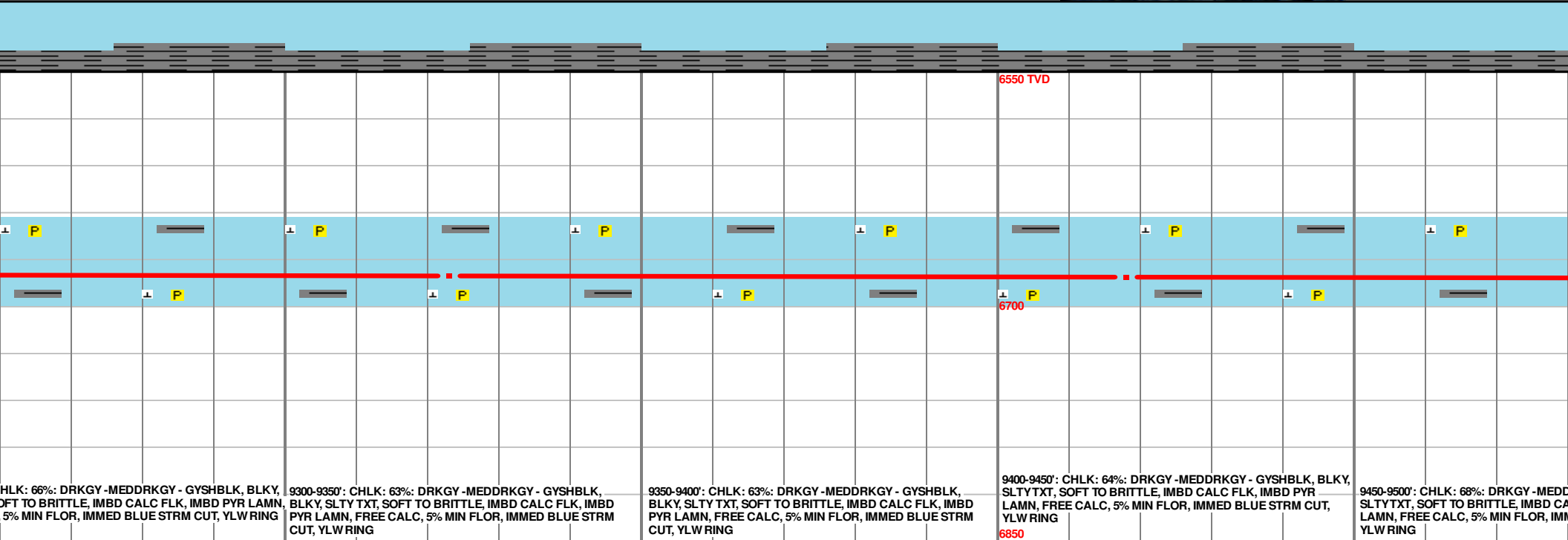
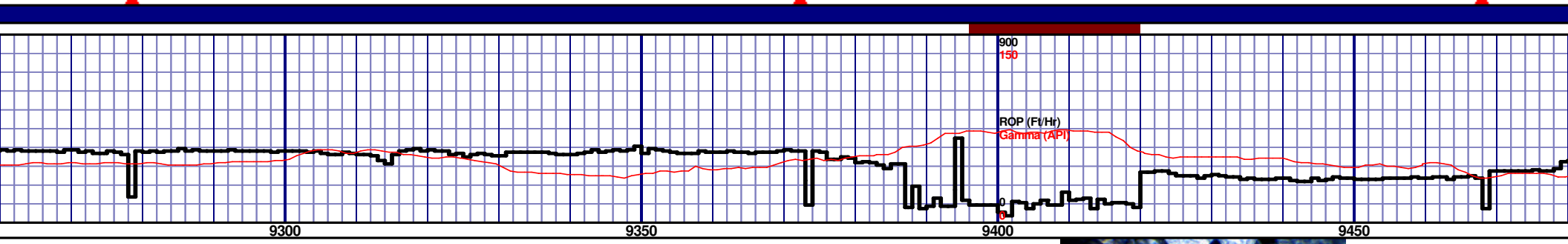
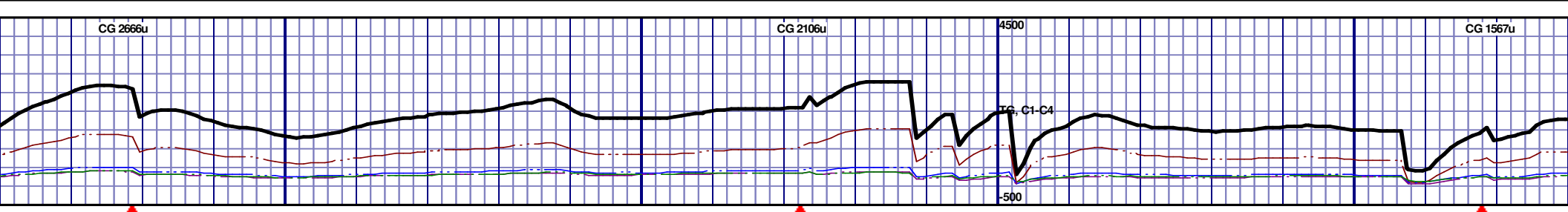


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INC 87.6 AZ 1.1  
VS 2253.56

MD 8942 TVD 6574  
INC 87.8 AZ 0.6  
VS 2347.68

MD  
INC  
VS





CHLK: 66%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

9300-9350': CHLK: 63%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE CALC, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

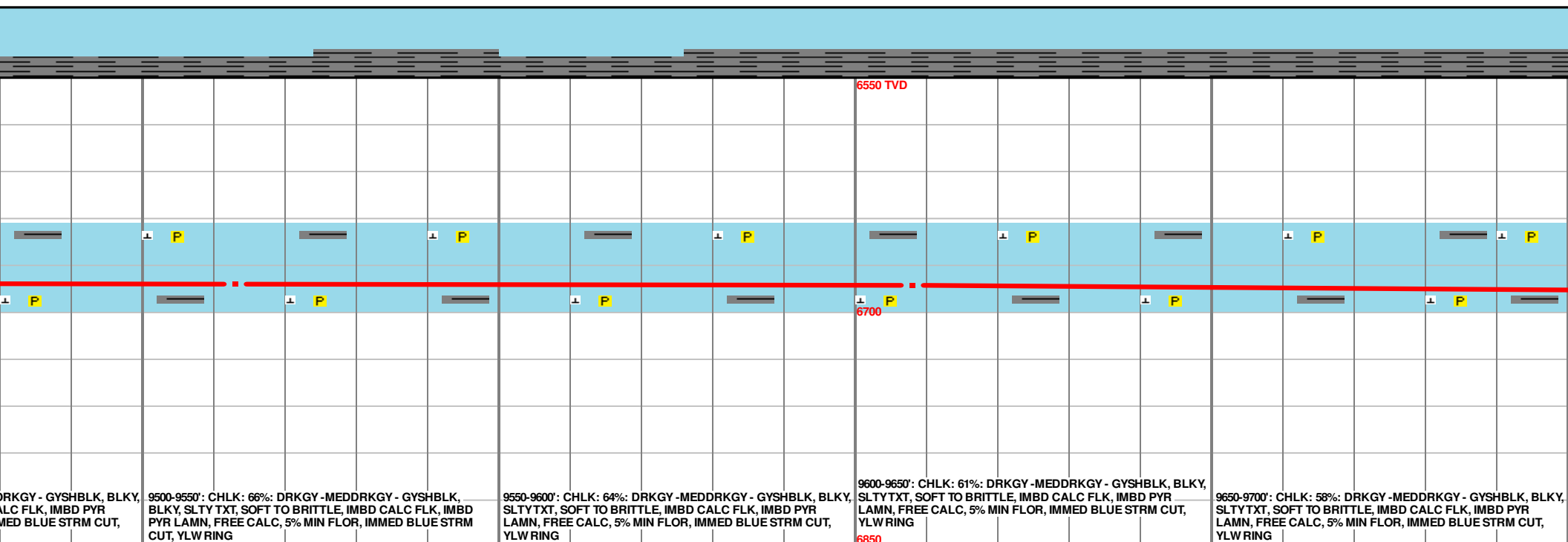
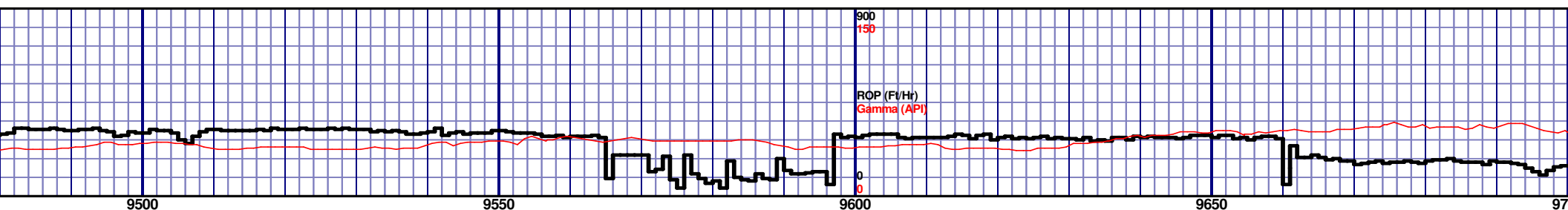
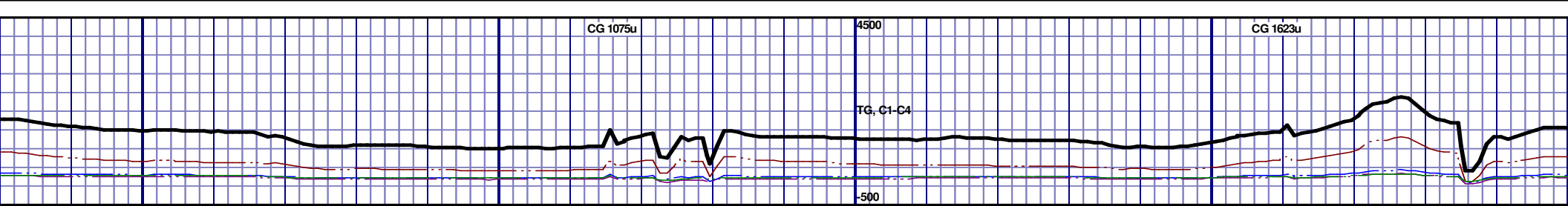
9350-9400': CHLK: 63%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE CALC, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

9400-9450': CHLK: 64%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE CALC, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

9450-9500': CHLK: 68%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE CALC, 5% MIN FLOR, IMMED BLUE STRM CUT, YLW RING

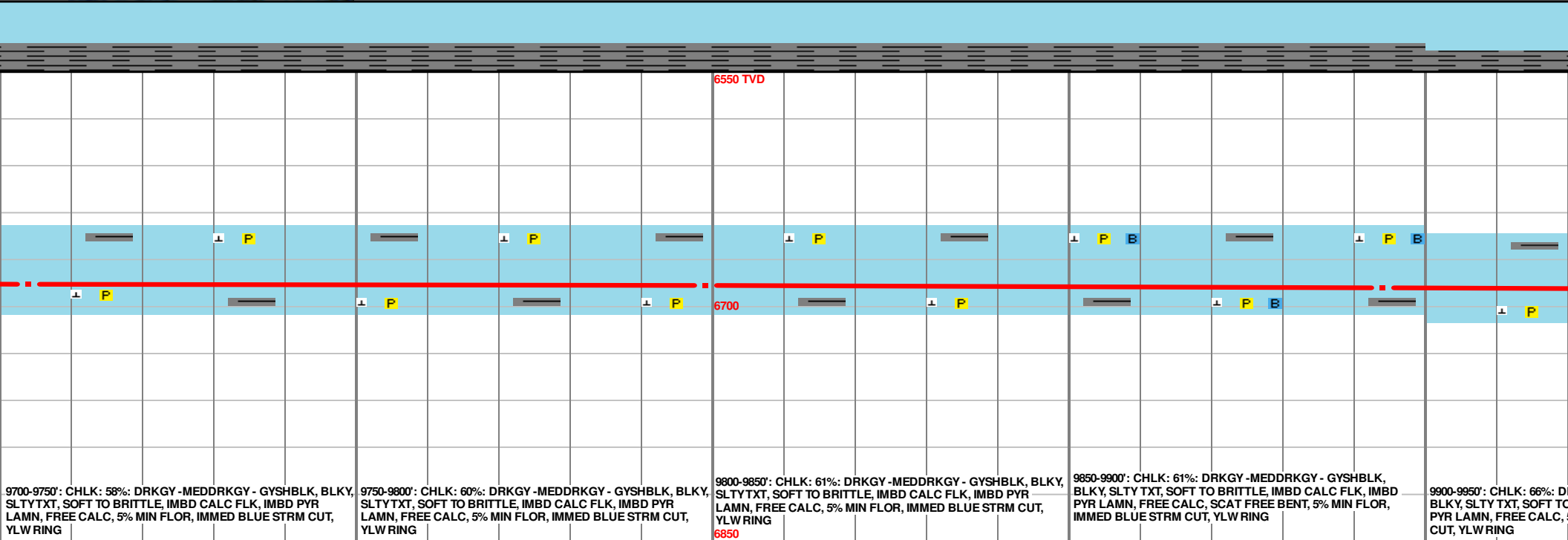
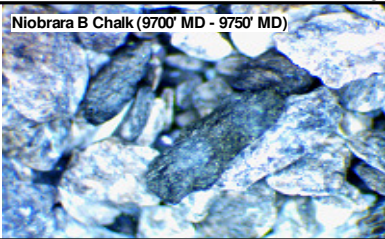
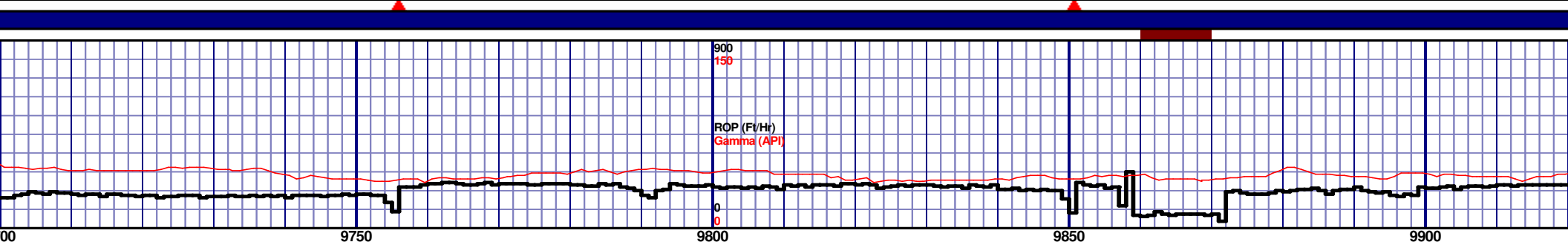
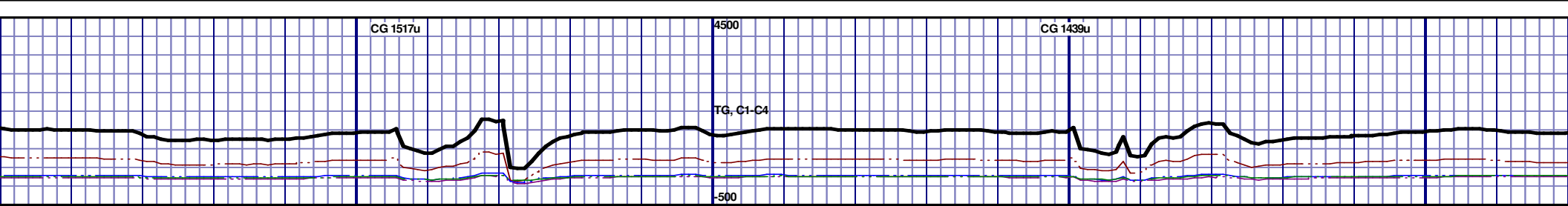
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INC 90.4 AZ 0.6  
VS 2724.92

MD 9418 TVD 6681.22  
INC 88.7 AZ 359.4  
VS 2818.91



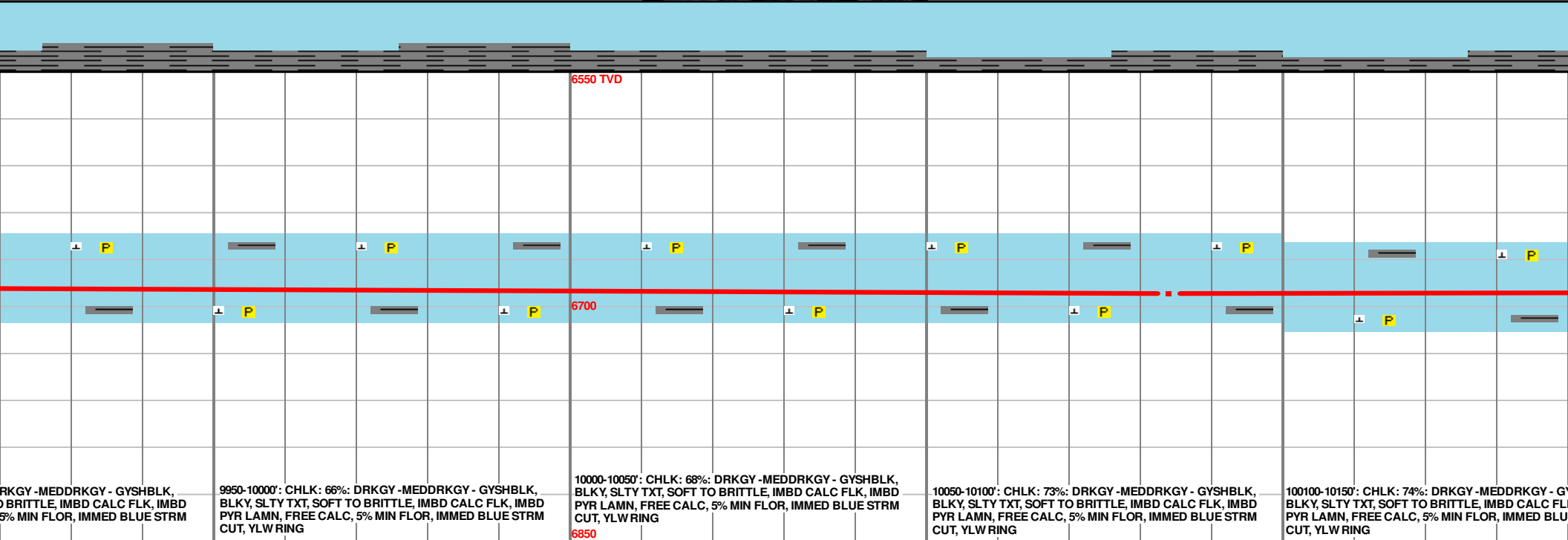
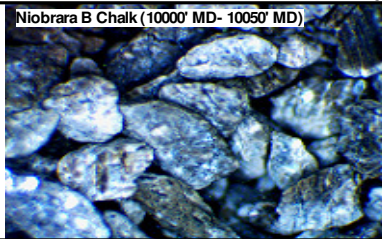
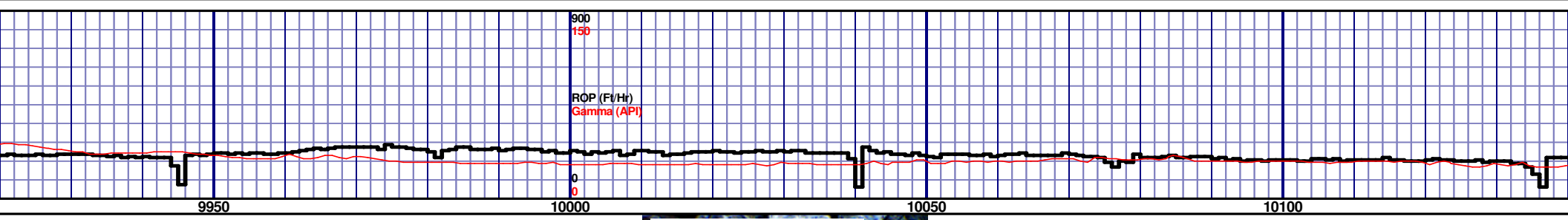
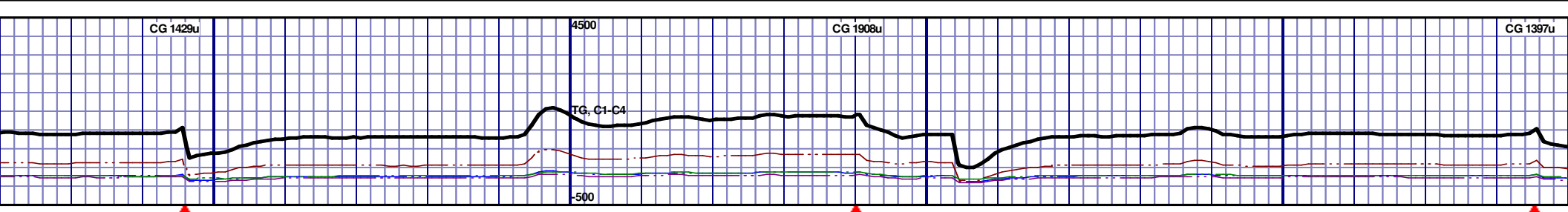
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VS 2912.8

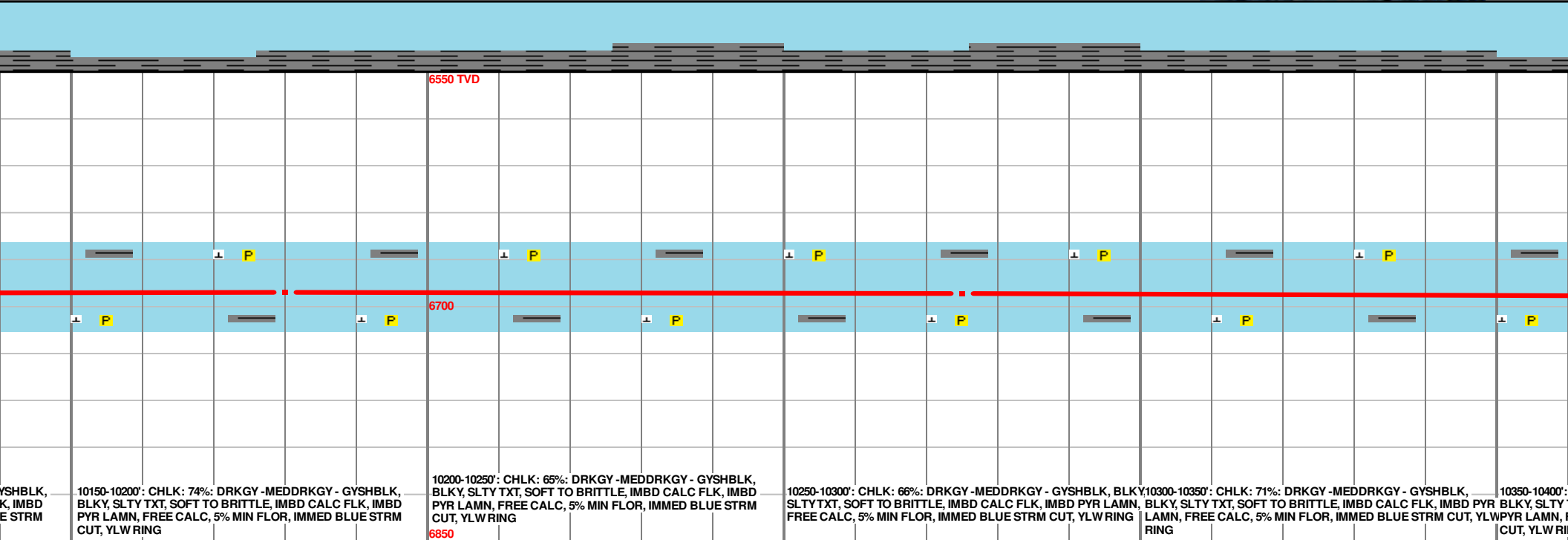
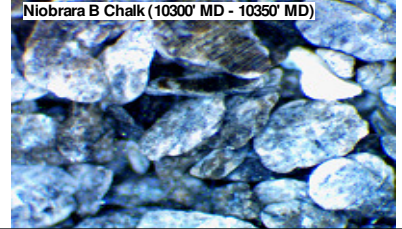
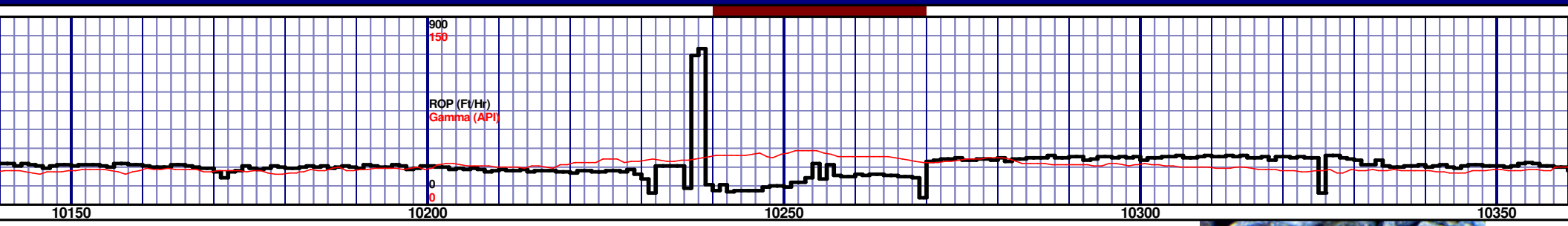
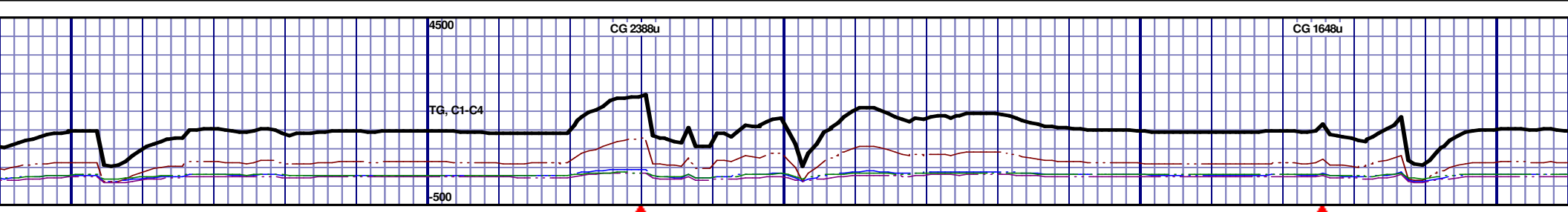
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INC 88.3 AZ 358.7  
VS 3006.59



MD 9704 TVD 6685.56 INC 88.7 AZ 358.3 VS 3101.15	MD 9799 TVD 6686.72 INC 89.9 AZ 359 VS 3194.8	MD 9894 TVD 6688.3 INC 88.2 AZ 359 VS 3288.53
9700-9750': CHLK: 58%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE CALC, 5% MIN FLOR, IMMED BLUE STRM CUT, YLWRING	9750-9800': CHLK: 60%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE CALC, 5% MIN FLOR, IMMED BLUE STRM CUT, YLWRING	9800-9850': CHLK: 61%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE CALC, 5% MIN FLOR, IMMED BLUE STRM CUT, YLWRING
	9850-9900': CHLK: 61%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE CALC, SCAT FREE BENT, 5% MIN FLOR, IMMED BLUE STRM CUT, YLWRING	9900-9950': CHLK: 66%: DRKGY - MEDDRKGY - GYSHBLK, BLKY, SLTYTXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, FREE CALC, SCAT FREE BENT, 5% MIN FLOR, IMMED BLUE STRM CUT, YLWRING

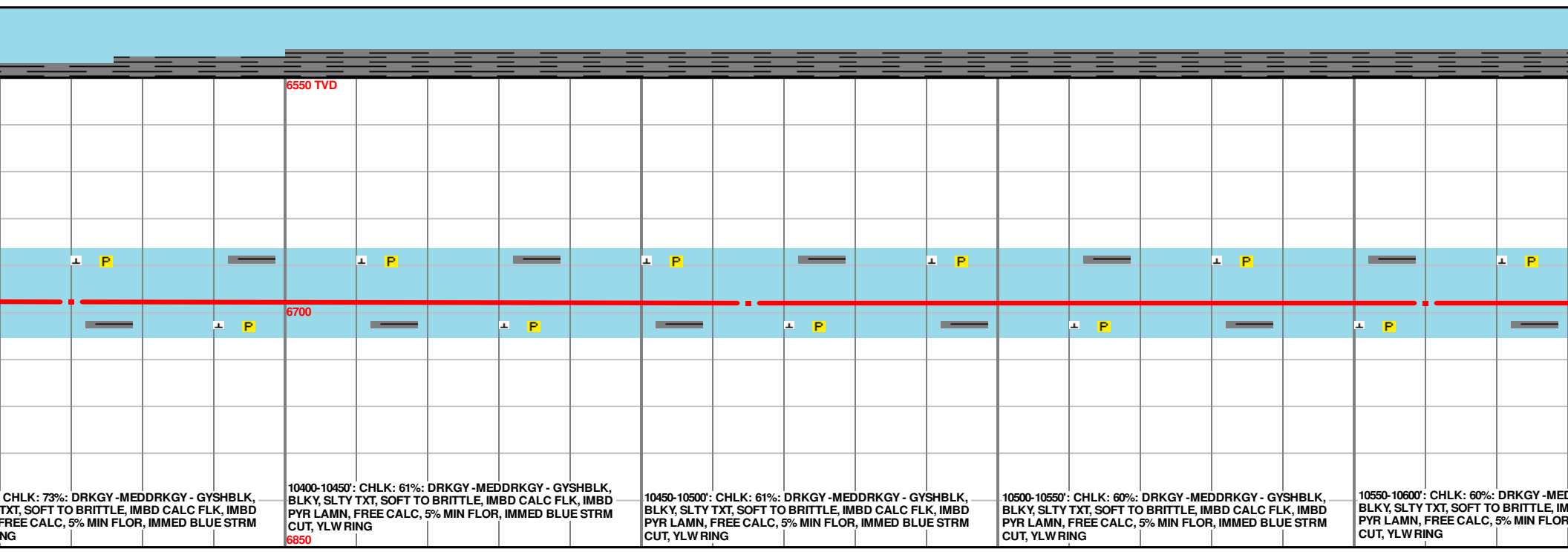
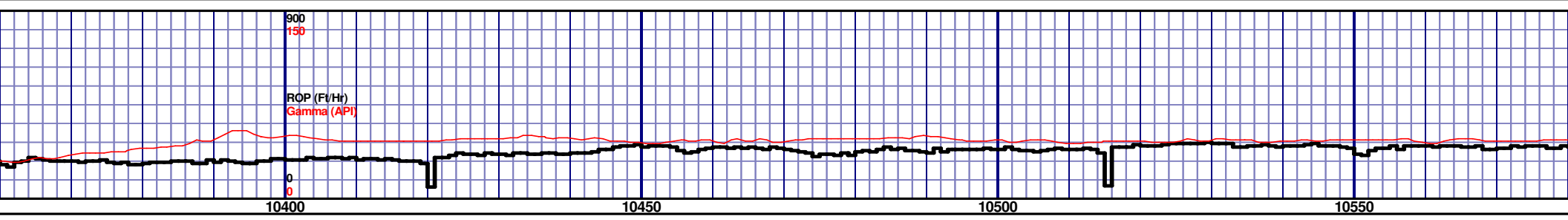
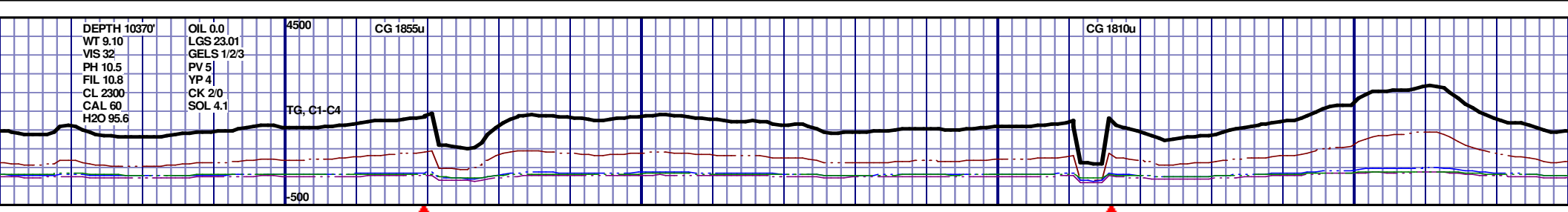






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INC 90.8 AZ 359  
VS 3570.72

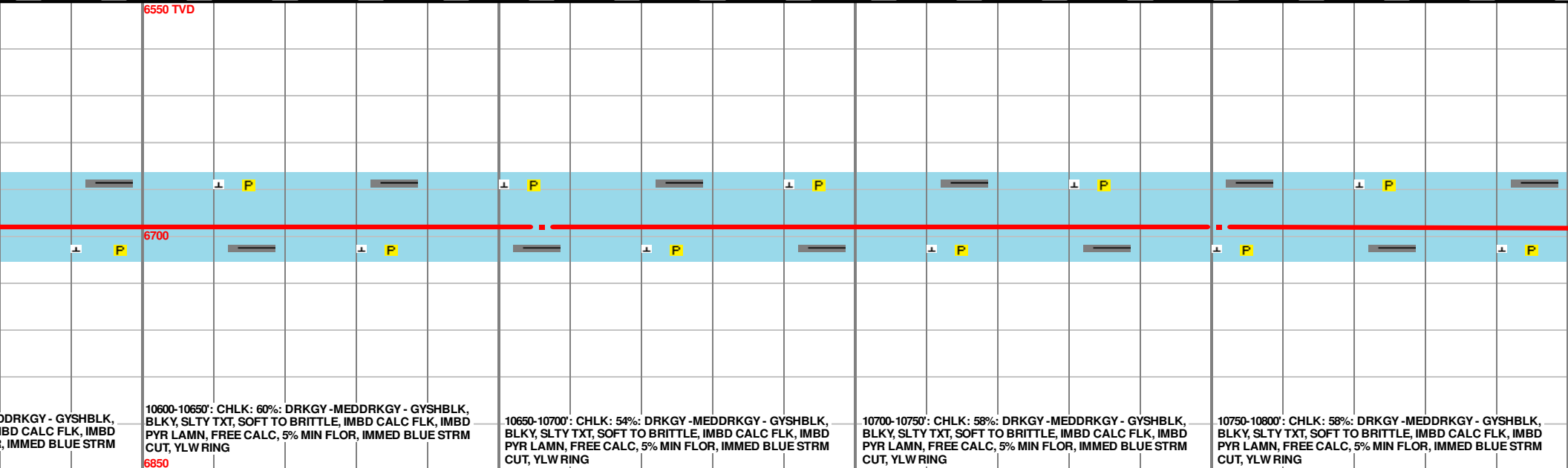
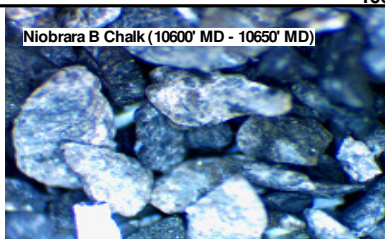
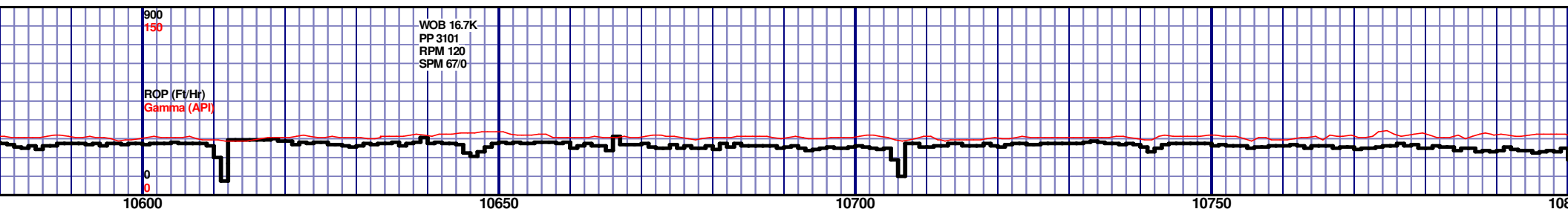
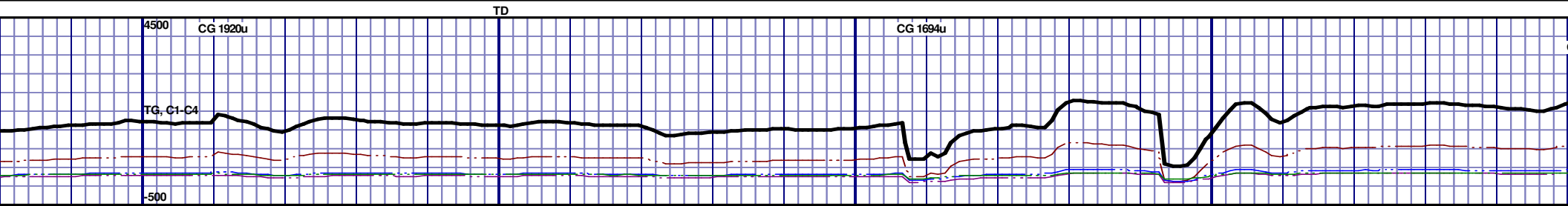
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INC 88.5 AZ 359.6  
VS 3664.54



MD 10370 TVD 6693.59  
INC 89.2 AZ 359.6  
VS 3758.43

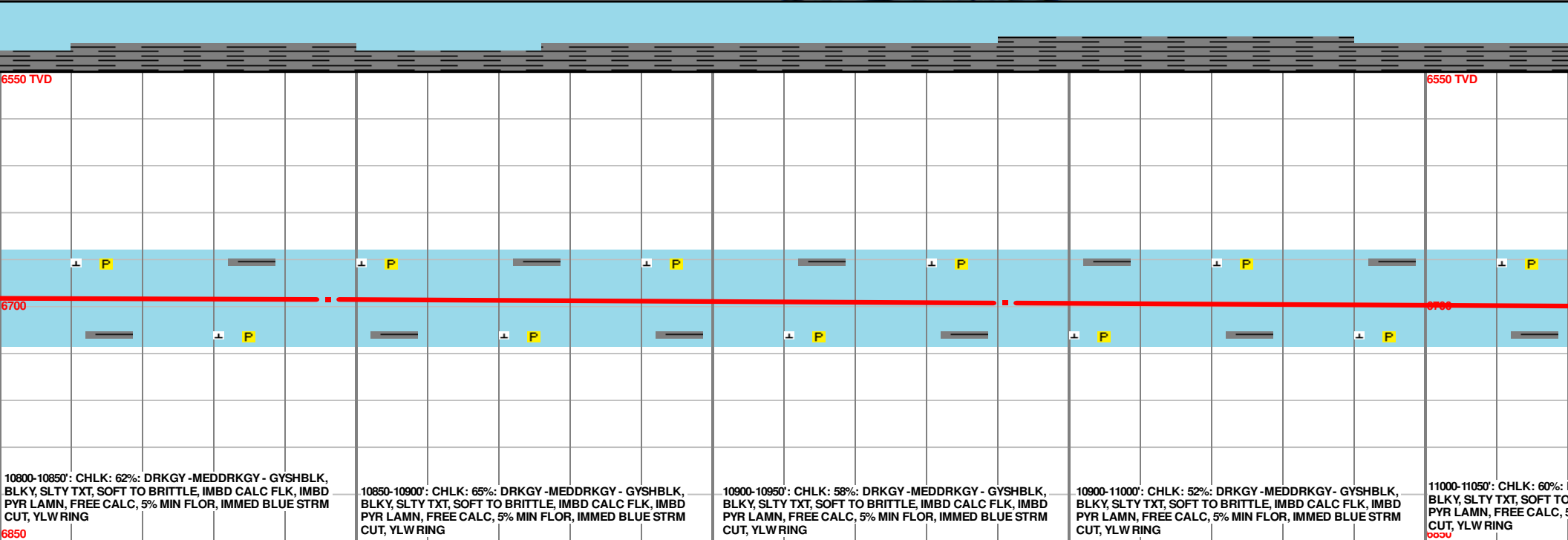
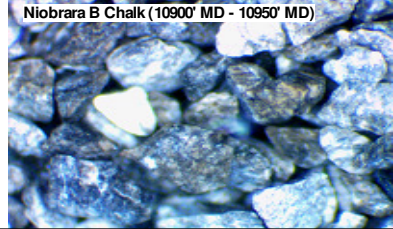
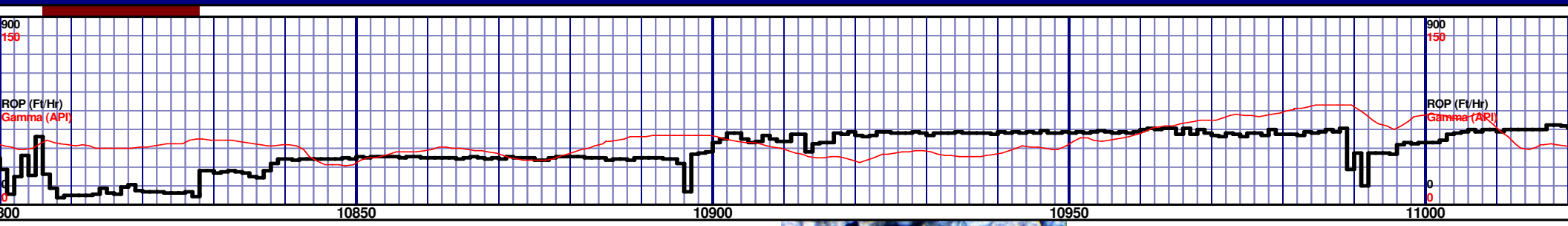
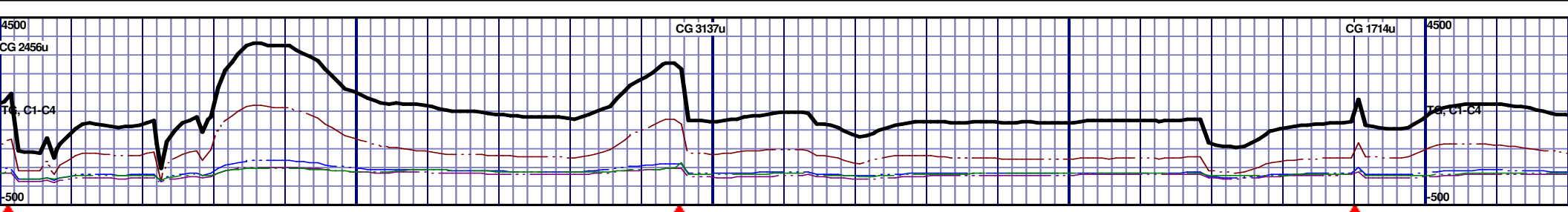
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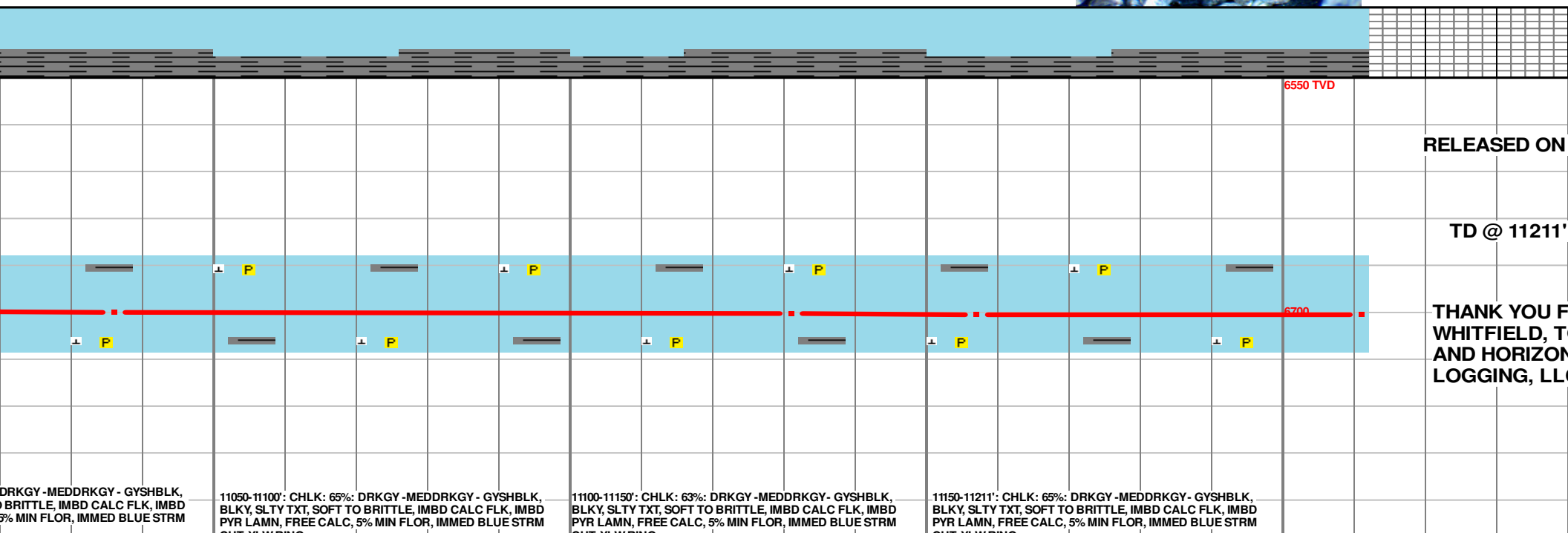
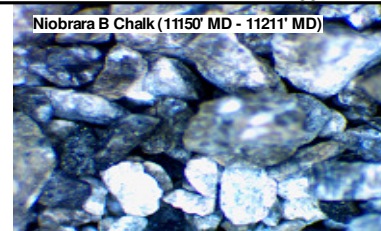
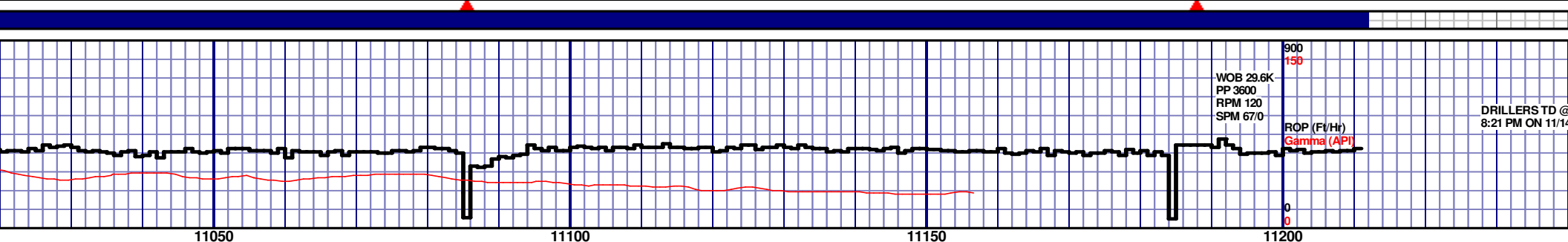
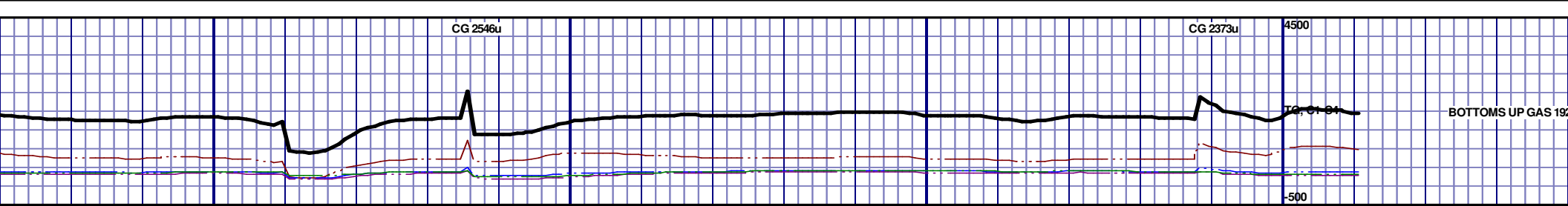
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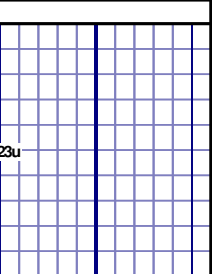
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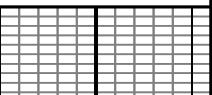
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INC 88 AZ 358.2  
VS 4229.2

MD 10941 TVD 6697.91  
INC 89.2 AZ 358  
VS 4322.67





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