



7136 South Yale Avenue, Suite 414

Tulsa, Oklahoma 74136-6378

phone 918.925.9739

fax 866.534.4559

WWW.HZMUD.COM

Customer Information

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

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

Mud Logging Details

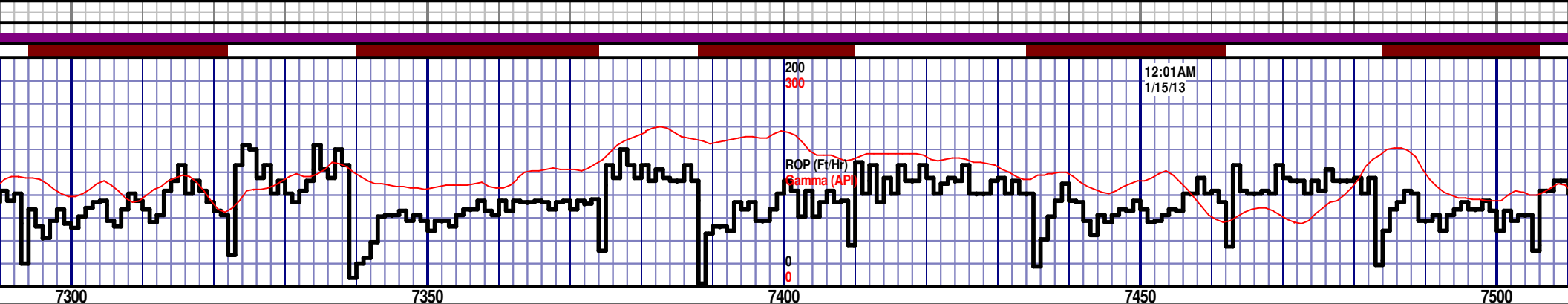
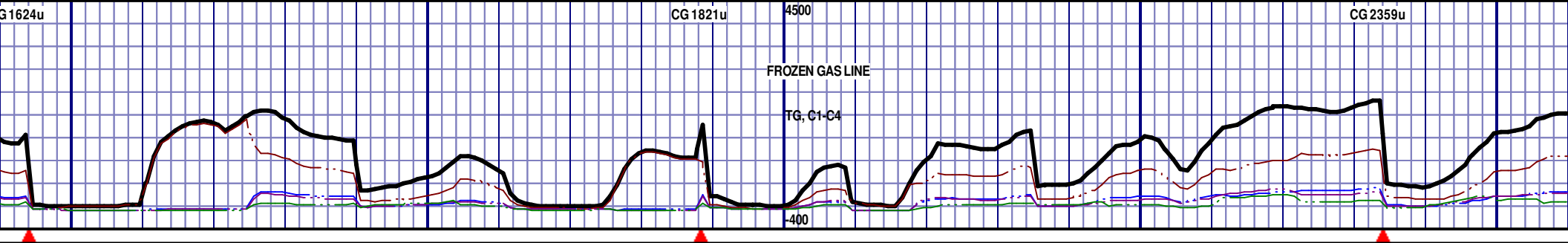
Logger: **Jonathan Faulkner & Andrew Christiano**
Log Interval: 7150' to 11624' MD
Start Date: January 14, 2013
Release Date: January 18, 2013

Well Information

Well Name: **English Farms XX08-72HN**
Horizontal
Location: **8-1N-65W**
263' FSL, 248' FWL

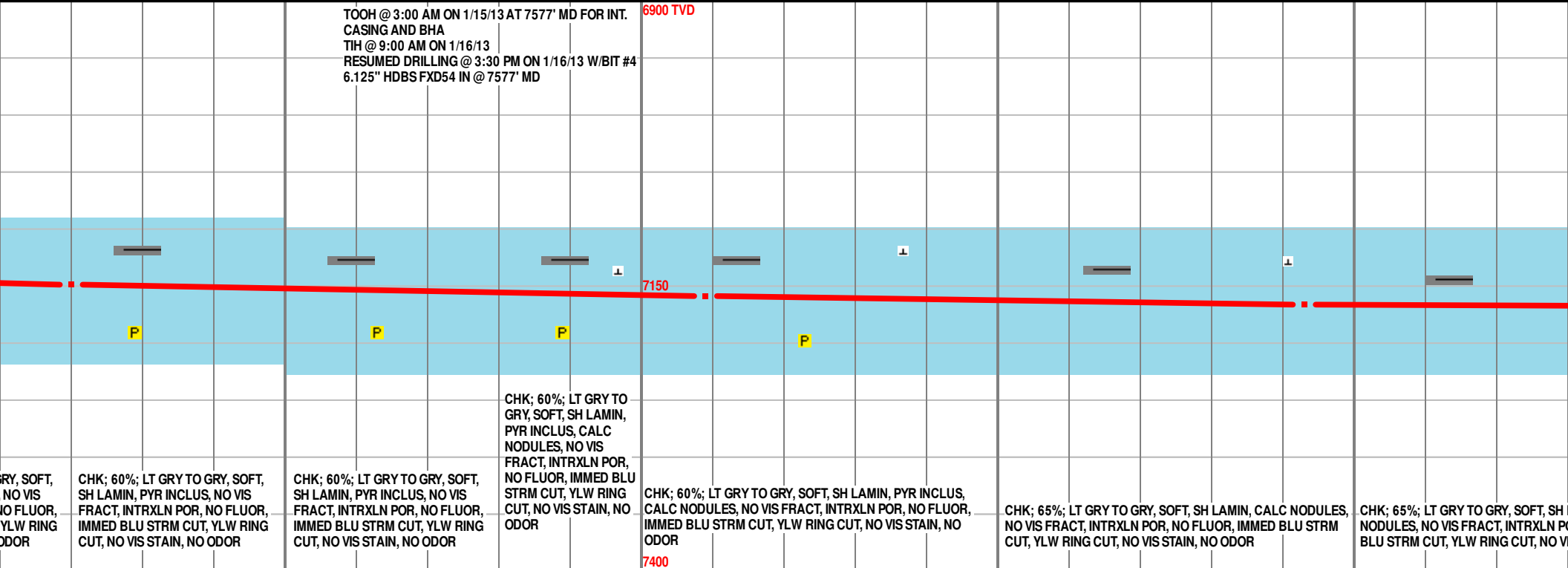
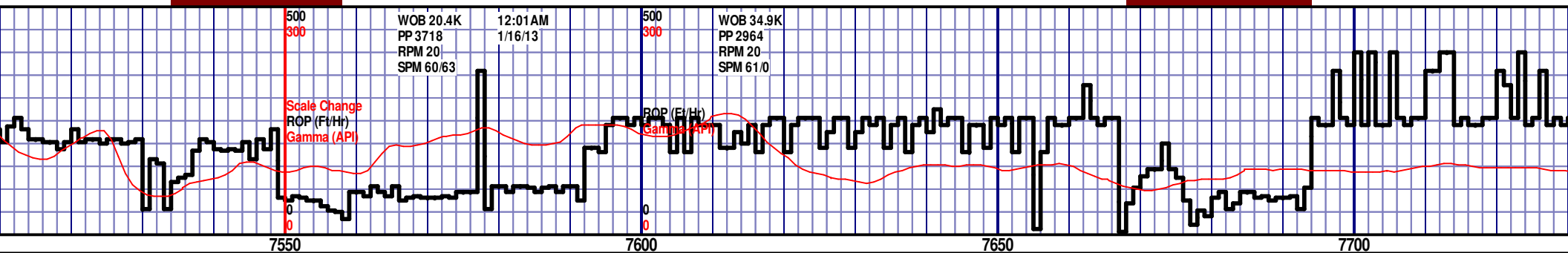
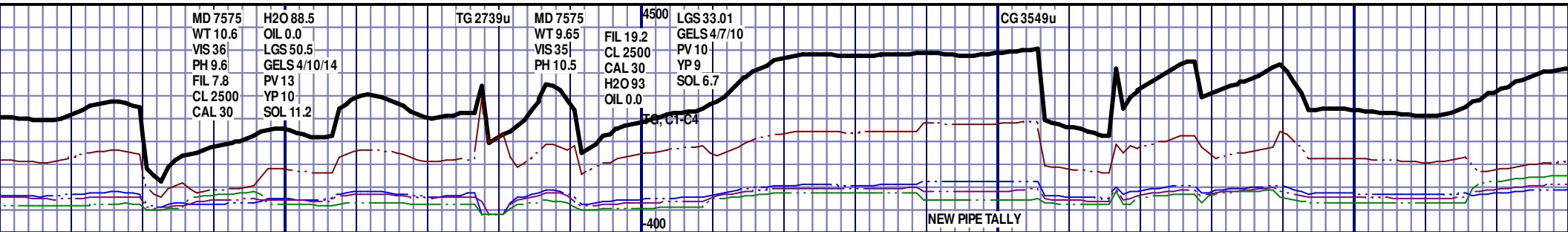
County: **Weld**
State: **Colorado**

Drilling Rig: **H&P 321**
Total Depth: **11624' MD**
TD Date: **January 18, 2013**
Formation: **Niobrara C**
KB Elevation: **4961'**
GR Elevation: **4931'**
API Number: **05-123-36276**



NIOBRARA B MARL 7310' MD 7084' TVD				NIOBRARA C CHALK 7430' MD 7132' TVD			
LT GRY TO GRY, SOFT, PYR INCLUS, NO VIS RXLN POR, NO FLUOR, IMM BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR				CHK; 60%; LT GRY TO GRY, SOFT, SH LAMIN, PYR INCLUS, NO VIS FRACT, INTRXLN POR, NO FLUOR, IMM BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR			

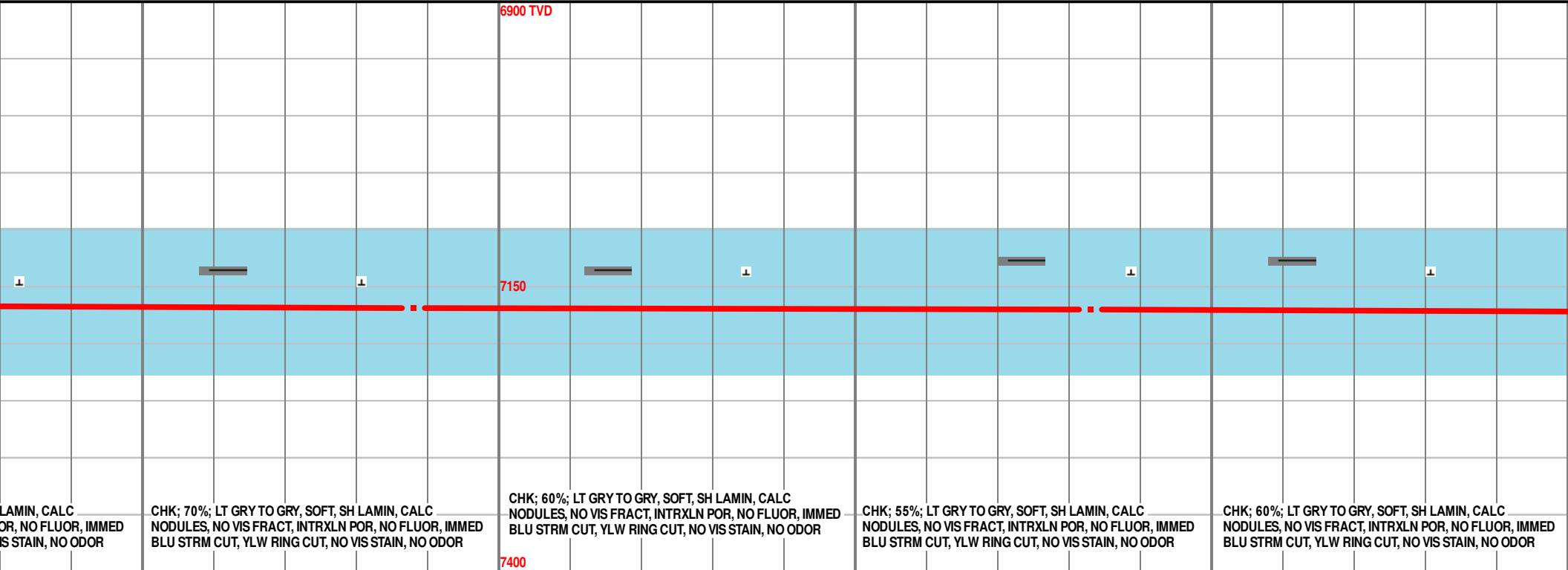
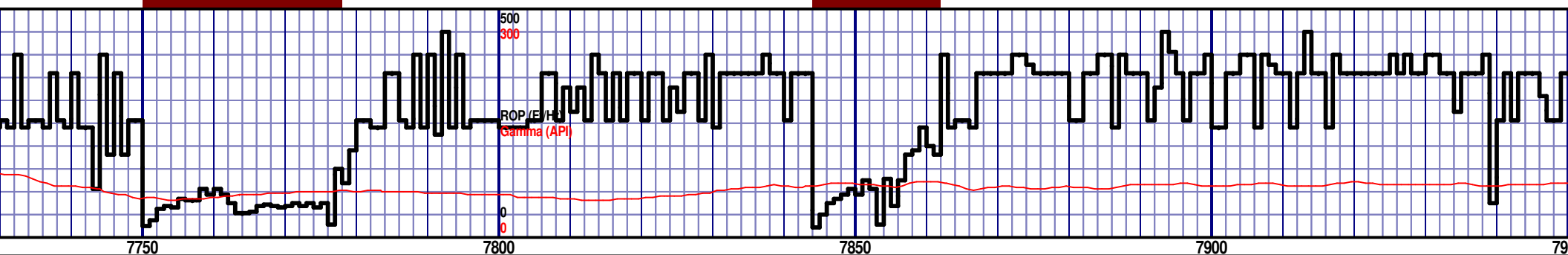
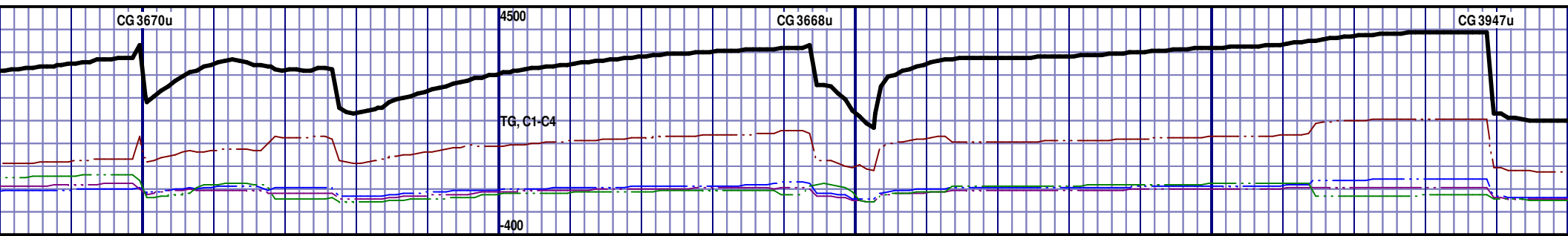
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MD 7520 TVD 7148.75
INC 81.91 AZ 179.71
VS 454.16

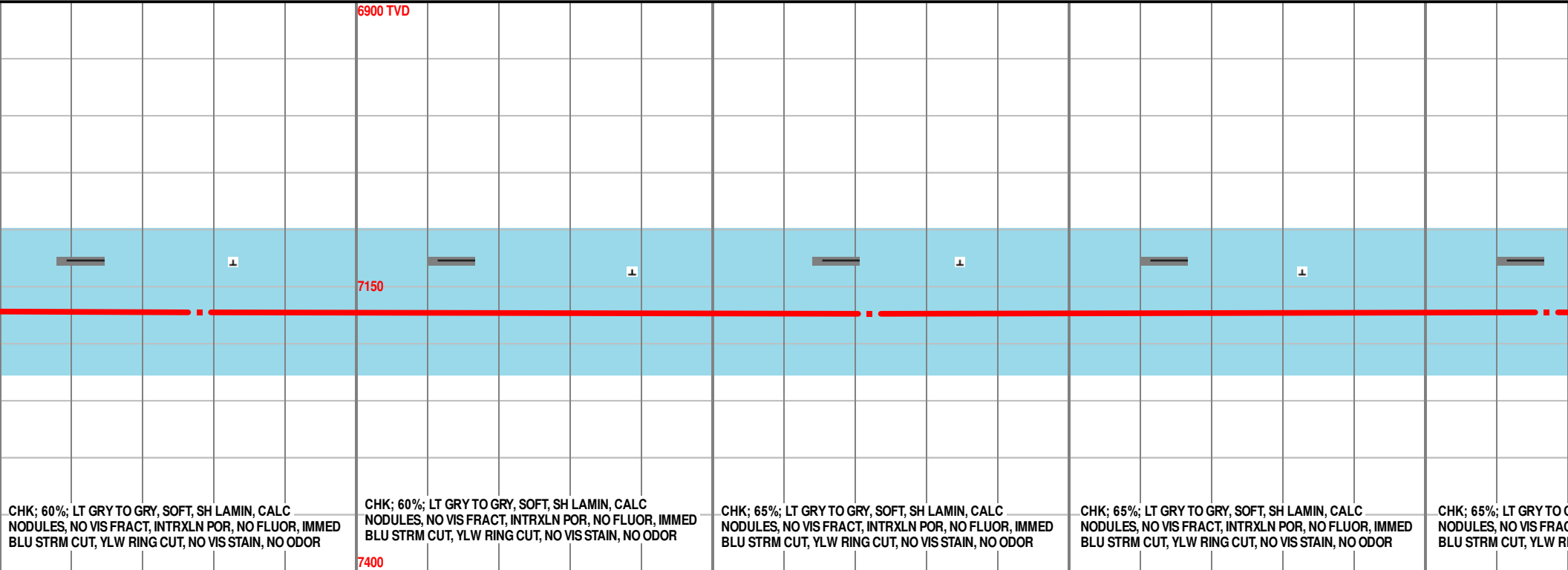
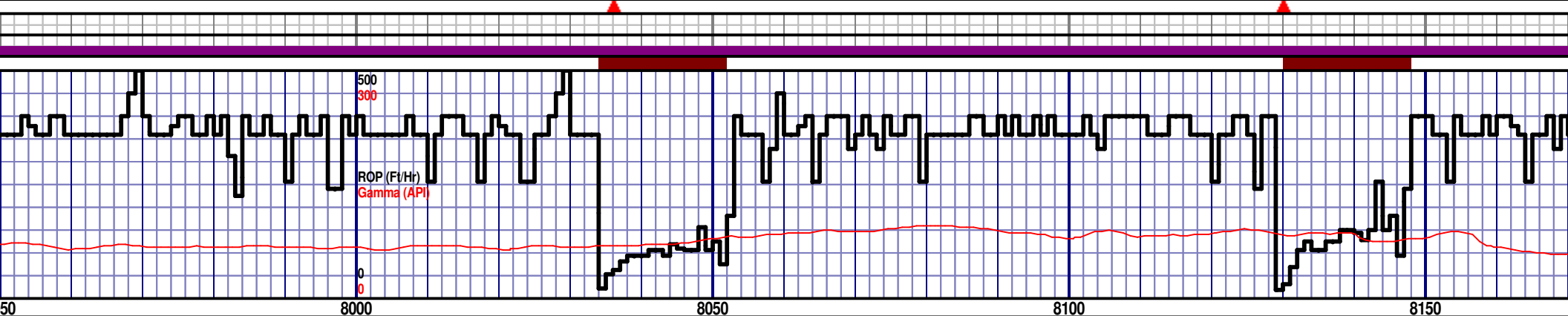
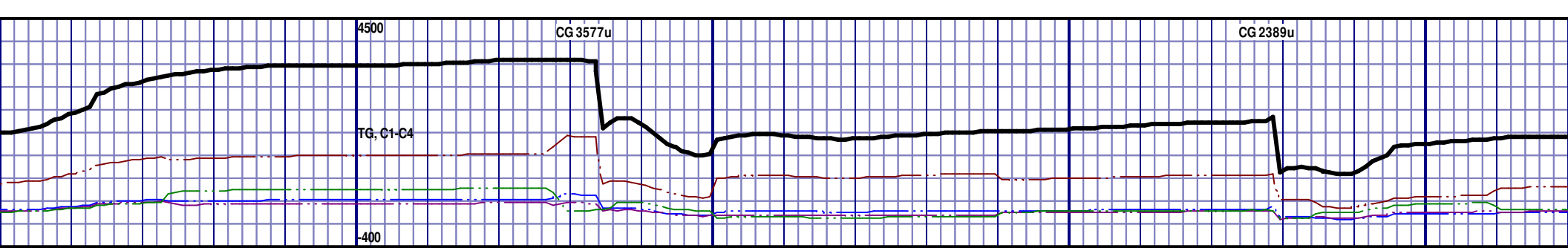
MD 7609 TVD 7159.15
INC 84.75 AZ 177.64
VS 542.02

MD 7693 TVD 7165.78
INC 86.2 AZ 179.05
VS 625.21



MD 7788 TVD 7168.93
INC 90 AZ 180.01
VS 719.73

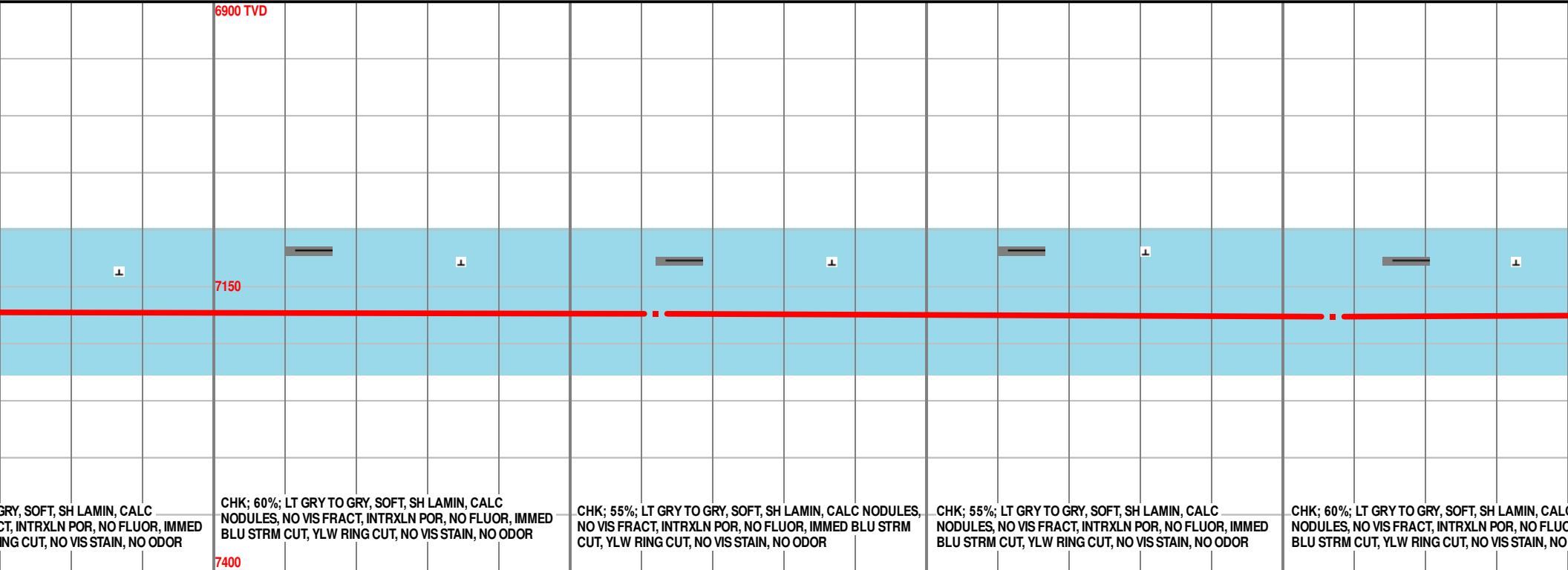
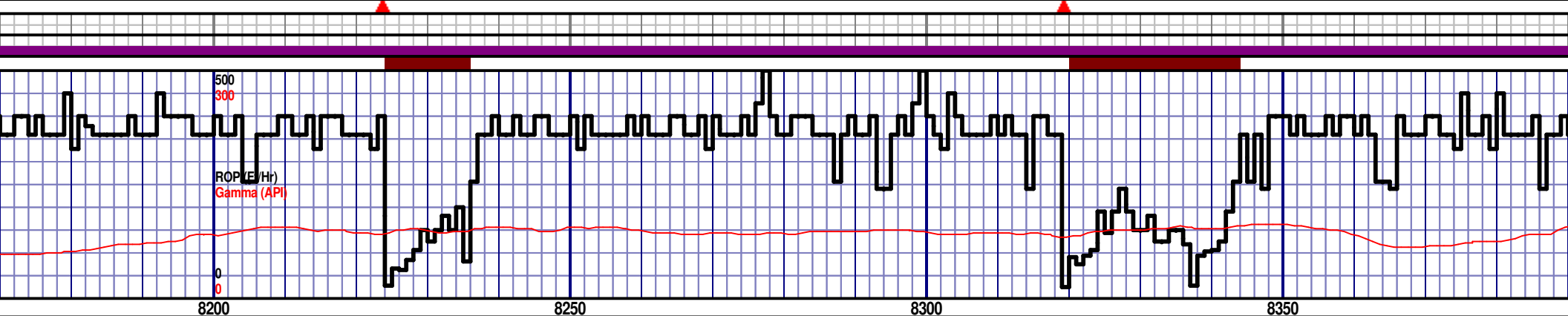
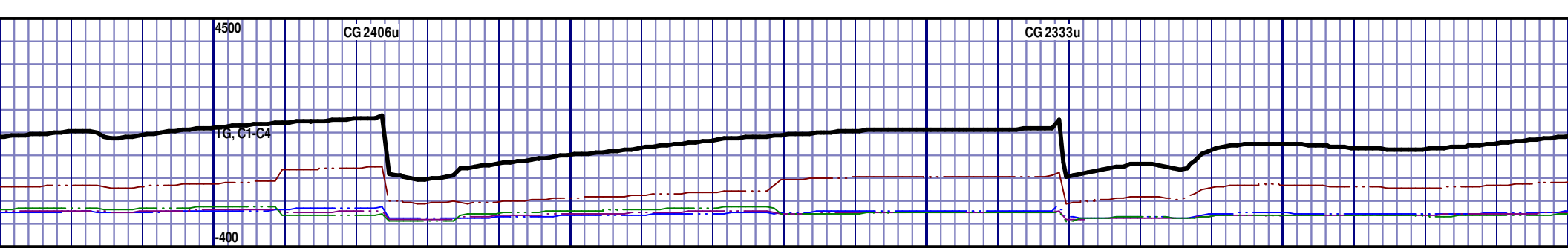
MD 7883 TVD 7169.87
INC 88.86 AZ 179.88
VS 814.38

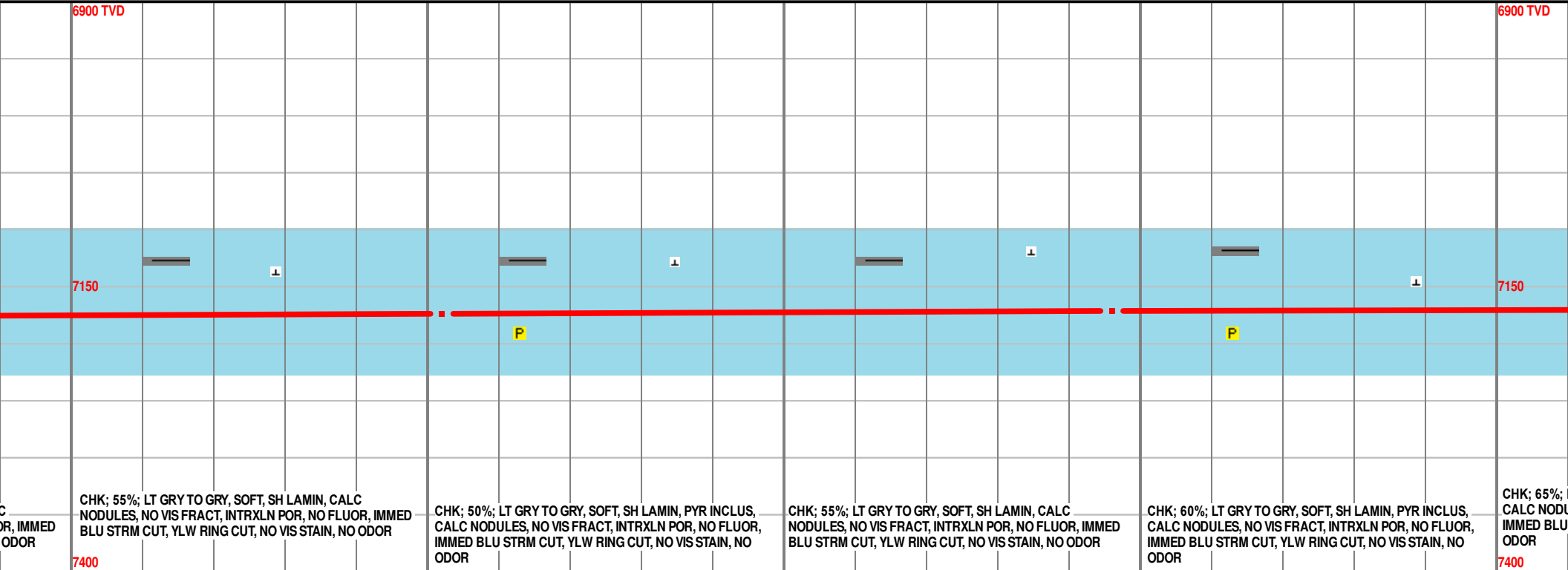
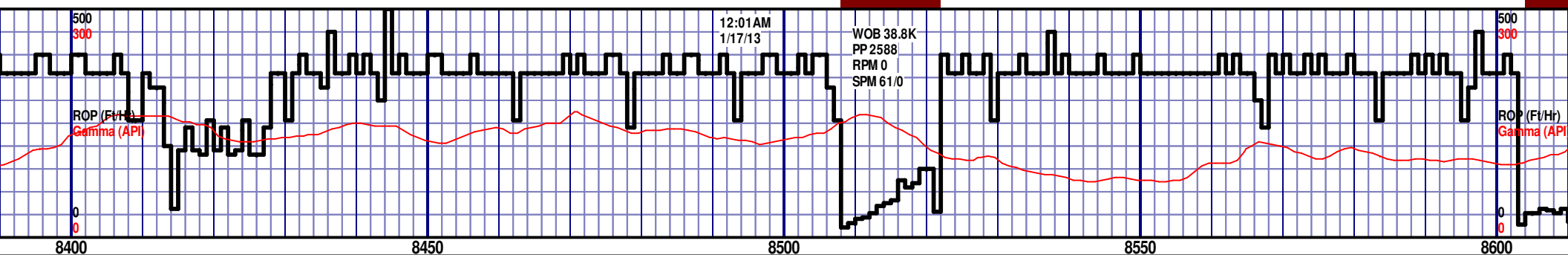
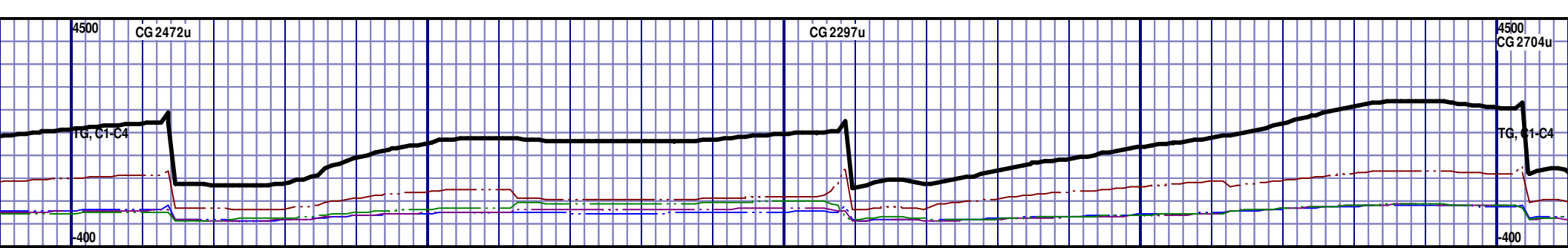


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INC 88.43 AZ 178.72
VS 908.9

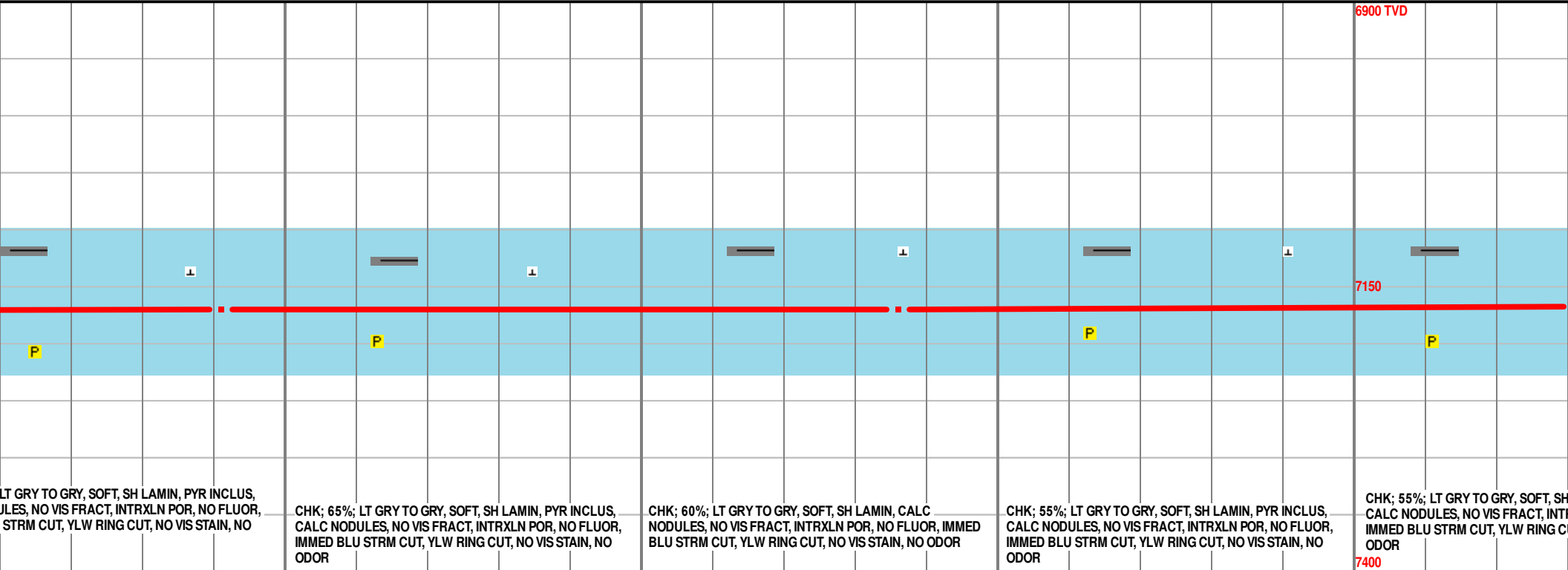
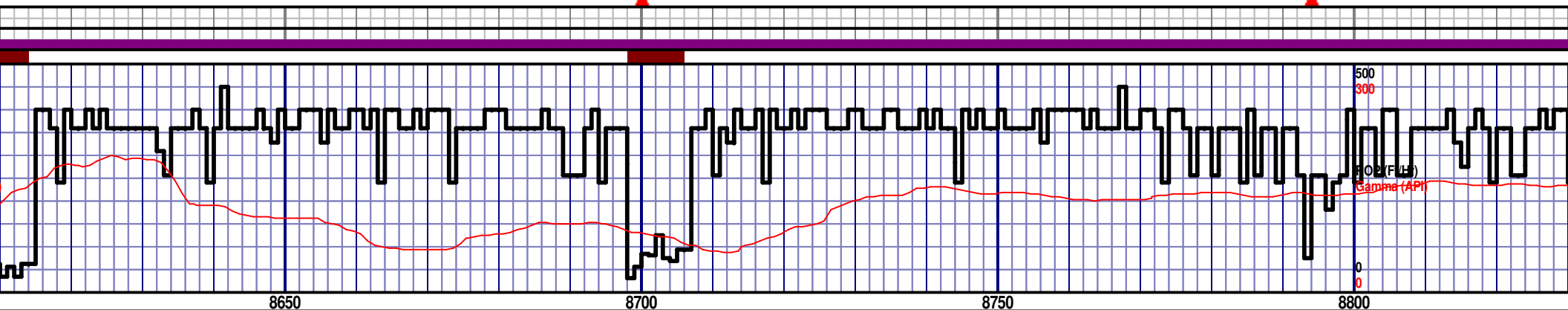
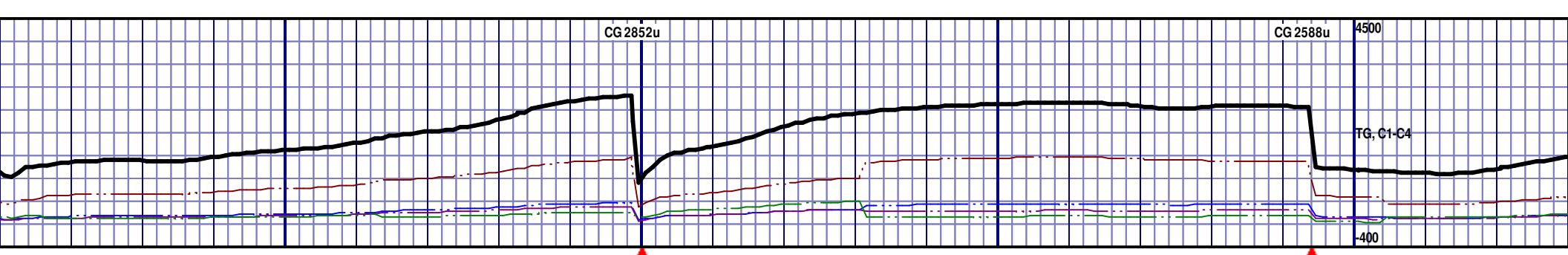
MD 8072 TVD 7173.31
INC 90.12 AZ 179.39
VS 1002.41

MD
INC
VS





CHK; 55%; LT GRY TO GRY, SOFT, SH LAMIN, CALC NODULES, NO VIS FRACT, INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 50%; LT GRY TO GRY, SOFT, SH LAMIN, PYR INCLUS, CALC NODULES, NO VIS FRACT, INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 55%; LT GRY TO GRY, SOFT, SH LAMIN, CALC NODULES, NO VIS FRACT, INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 60%; LT GRY TO GRY, SOFT, SH LAMIN, PYR INCLUS, CALC NODULES, NO VIS FRACT, INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 65%; LT GRY TO GRY, SOFT, SH LAMIN, PYR INCLUS, CALC NODULES, NO VIS FRACT, INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR
MD 8452 TVD 7173.41 INC 92.16 AZ 182.74 VS 1381.4			MD 8546 TVD 7170.81 INC 91.02 AZ 181.61 VS 1475.25	



LT GRY TO GRY, SOFT, SH LAMIN, PYR INCLUS,
JULES, NO VIS FRACT, INTRXLN POR, NO FLUOR,
STRM CUT, YLW RING CUT, NO VIS STAIN, NO

CHK; 65%; LT GRY TO GRY, SOFT, SH LAMIN, PYR INCLUS,
CALC NODULES, NO VIS FRACT, INTRXLN POR, NO FLUOR,
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO
ODOR

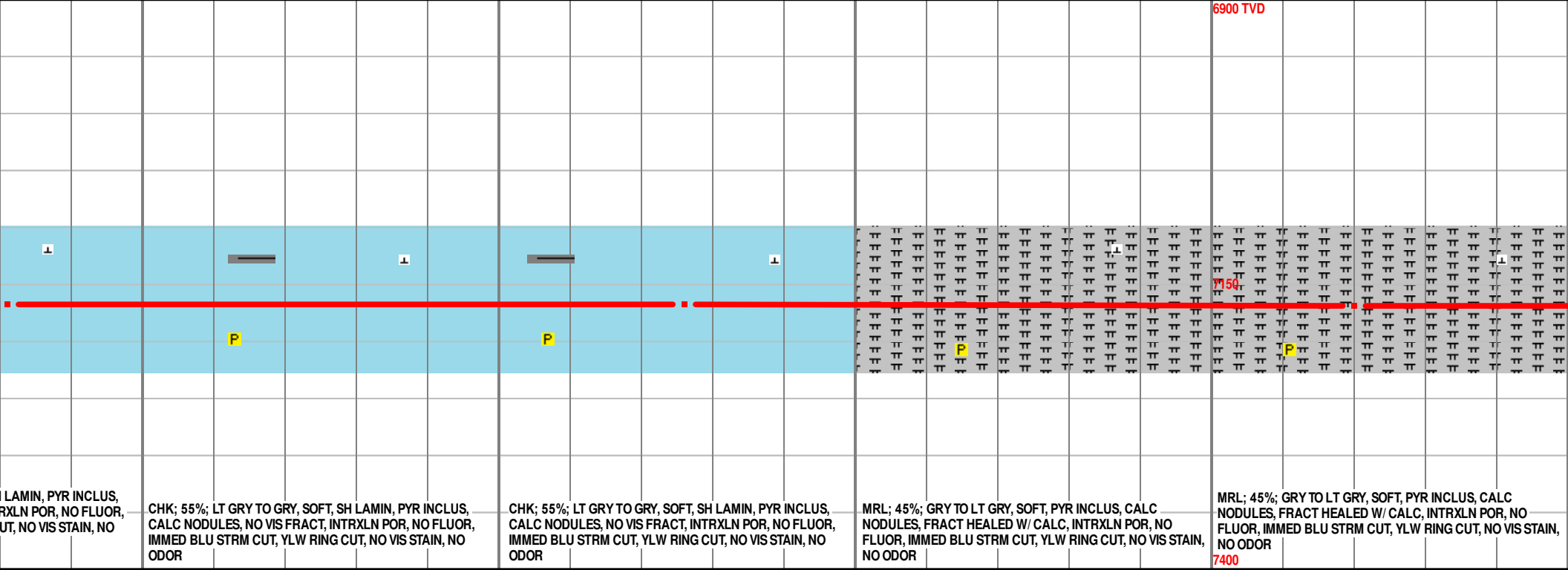
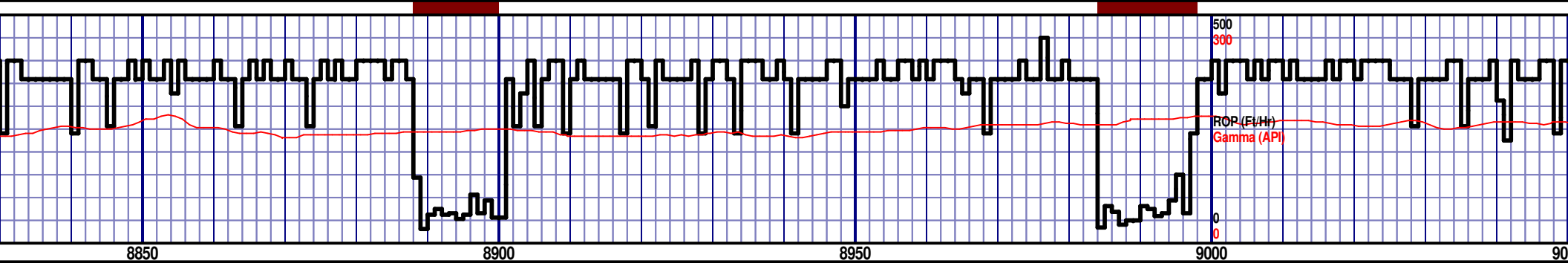
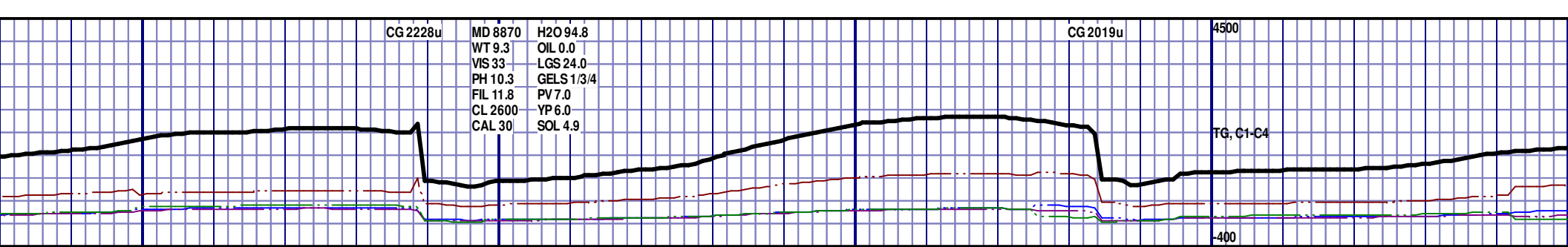
CHK; 60%; LT GRY TO GRY, SOFT, SH LAMIN, CALC
NODULES, NO VIS FRACT, INTRXLN POR, NO FLUOR, IMMED
BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

CHK; 55%; LT GRY TO GRY, SOFT, SH LAMIN, PYR INCLUS,
CALC NODULES, NO VIS FRACT, INTRXLN POR, NO FLUOR,
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO
ODOR

CHK; 55%; LT GRY TO GRY, SOFT, SH LAMIN, PYR INCLUS,
CALC NODULES, NO VIS FRACT, INTRXLN POR, NO FLUOR,
IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO
ODOR

MD 8641 TVD 7169.4
INC 90.68 AZ 179.64
VS 1569.98

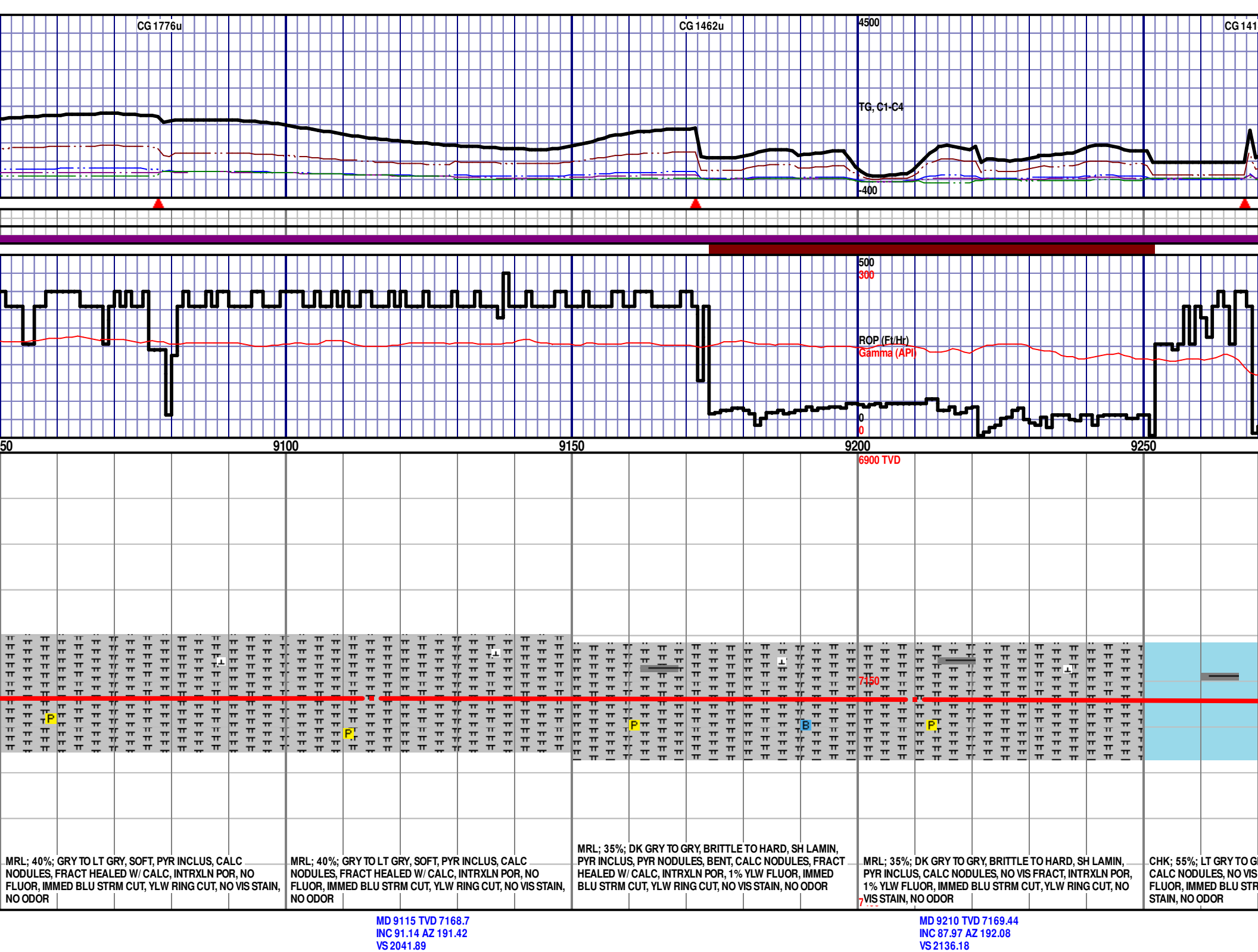
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INC 90.12 AZ 179.84
VS 1664.6

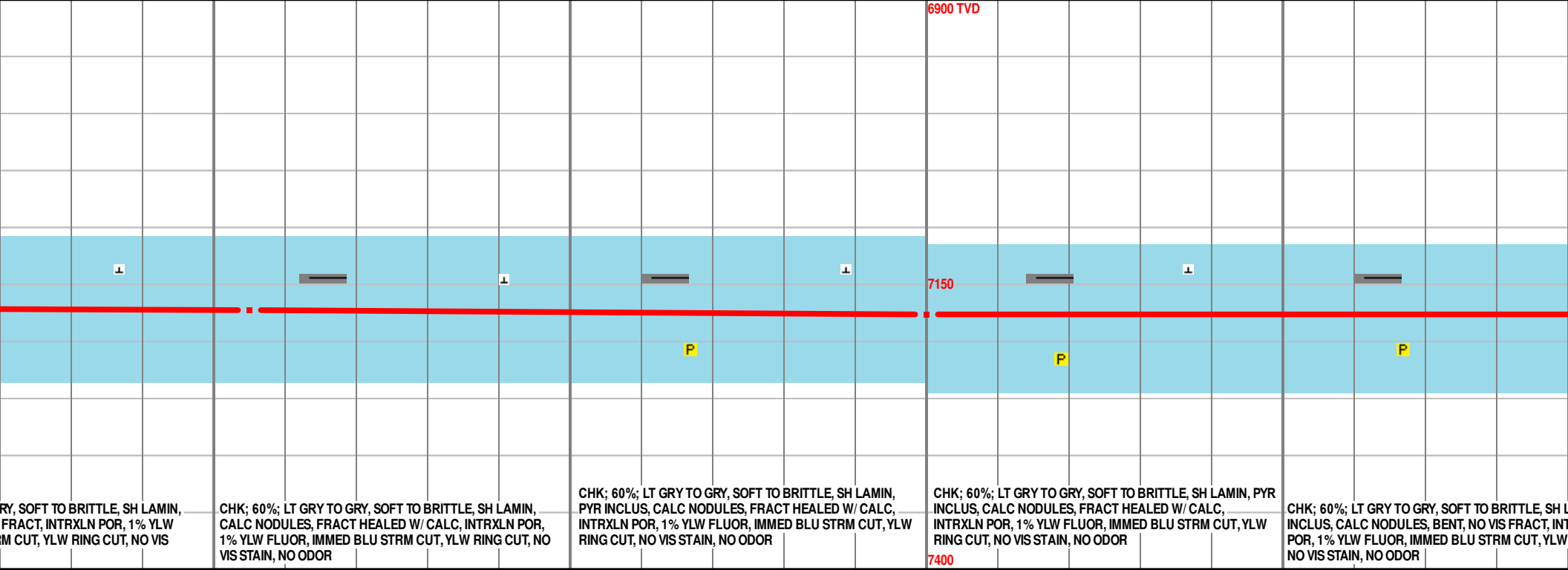
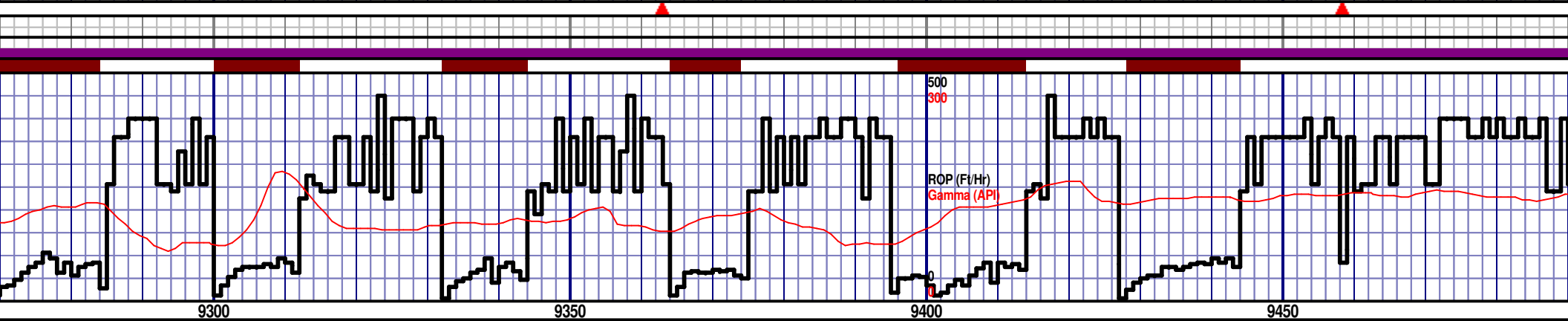
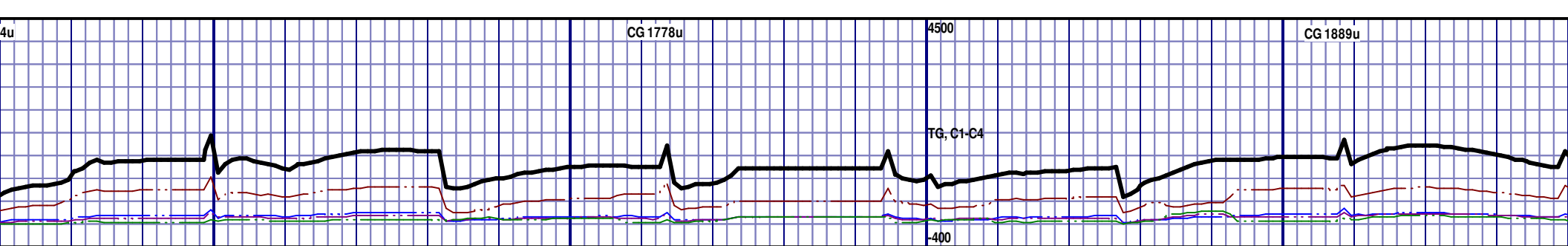


MD 8831 TVD 7168.05
INC 90.71 AZ 179.49
VS 1759.21

MD 8926 TVD 7167.92
INC 89.45 AZ 177.95
VS 1853.66

MD 9020 TVD 7169.01
INC 89.22 AZ 179.07
VS 1947.08





RY, SOFT TO BRITTLE, SH LAMIN,
FRACT, INTRXLN POR, 1% YLW
M CUT, YLW RING CUT, NO VIS

CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN,
CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR,
1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO
VIS STAIN, NO ODOR

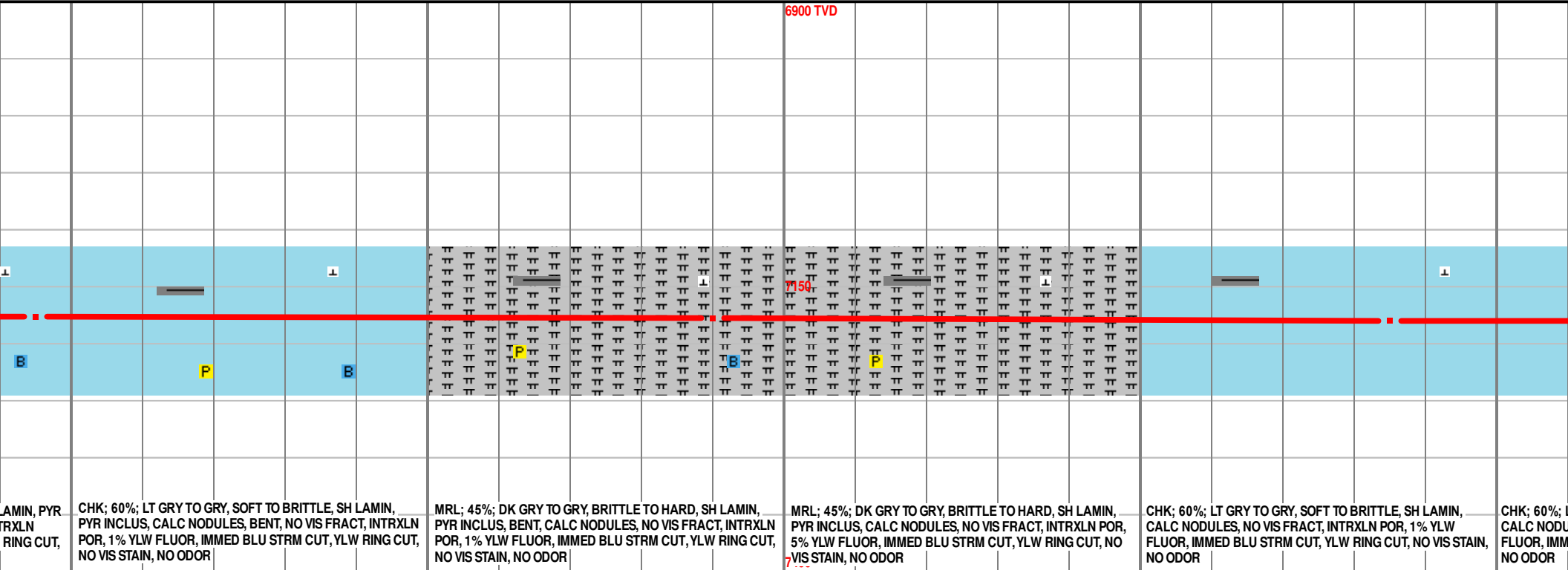
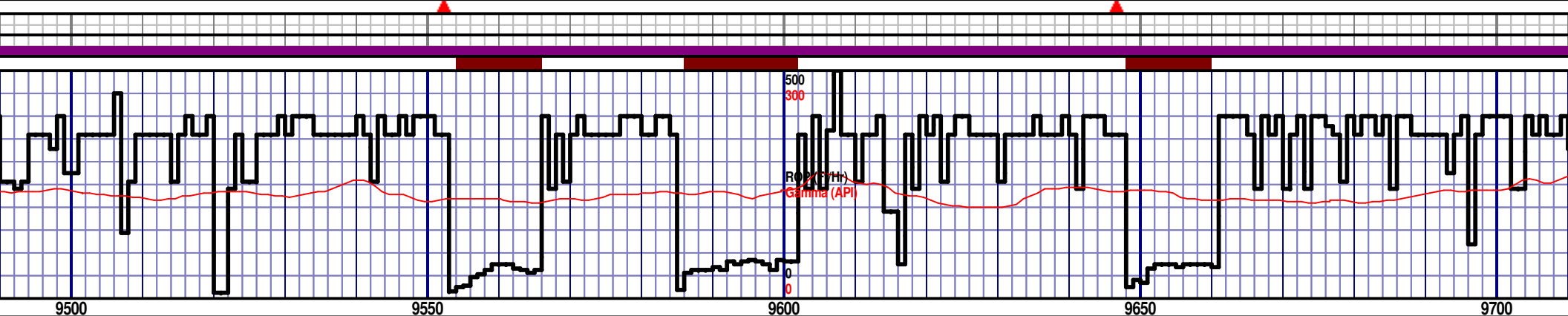
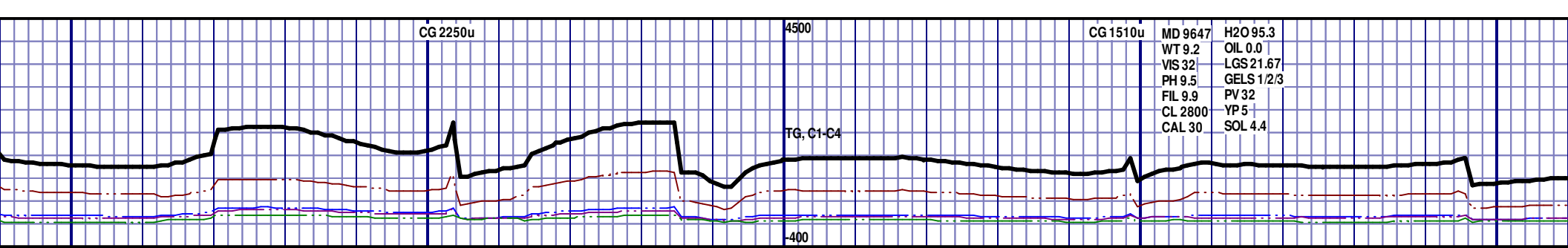
CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN,
PYR INCLUS, CALC NODULES, FRACT HEALED W/ CALC,
INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW
RING CUT, NO VIS STAIN, NO ODOR

CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR
INCLUS, CALC NODULES, FRACT HEALED W/ CALC,
INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW
RING CUT, NO VIS STAIN, NO ODOR

CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH L
INCLUS, CALC NODULES, BENT, NO VIS FRACT, INT
POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW
NO VIS STAIN, NO ODOR

MD 9305 TVD 7172.81
INC 87.97 AZ 185.51
VS 2230.85

MD 9400 TVD 7175.75
INC 88.49 AZ 180.26
VS 2325.71

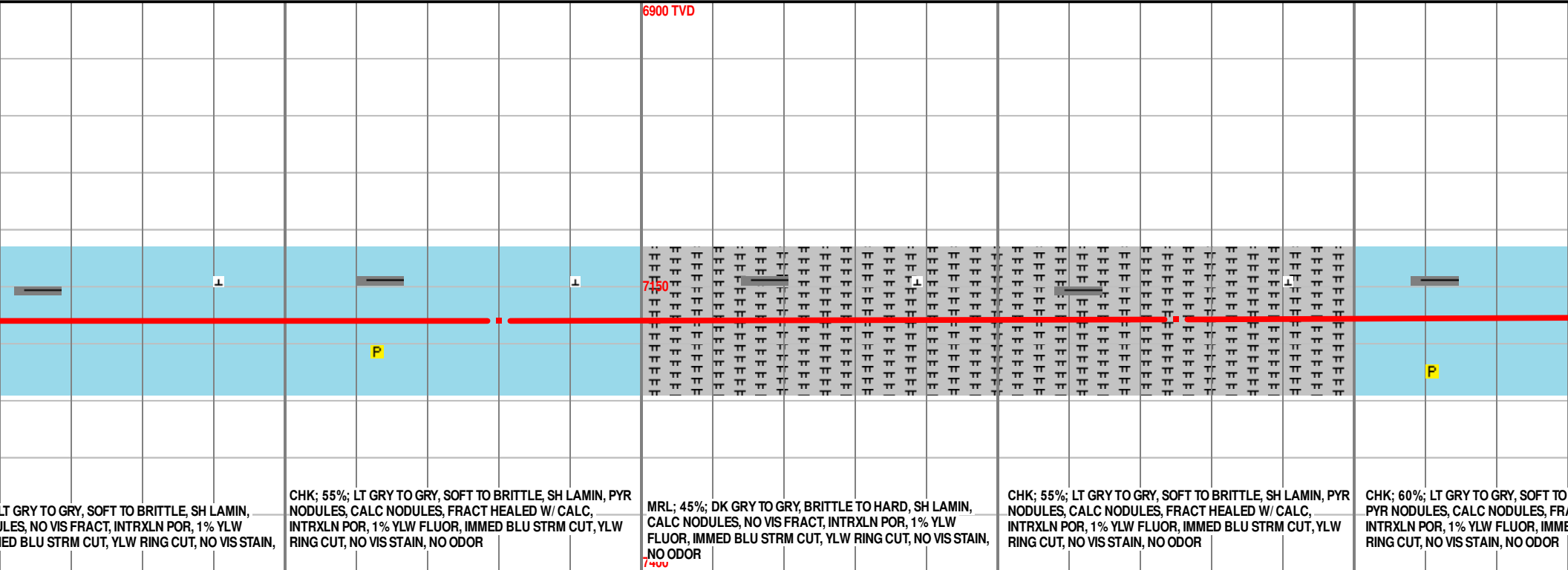
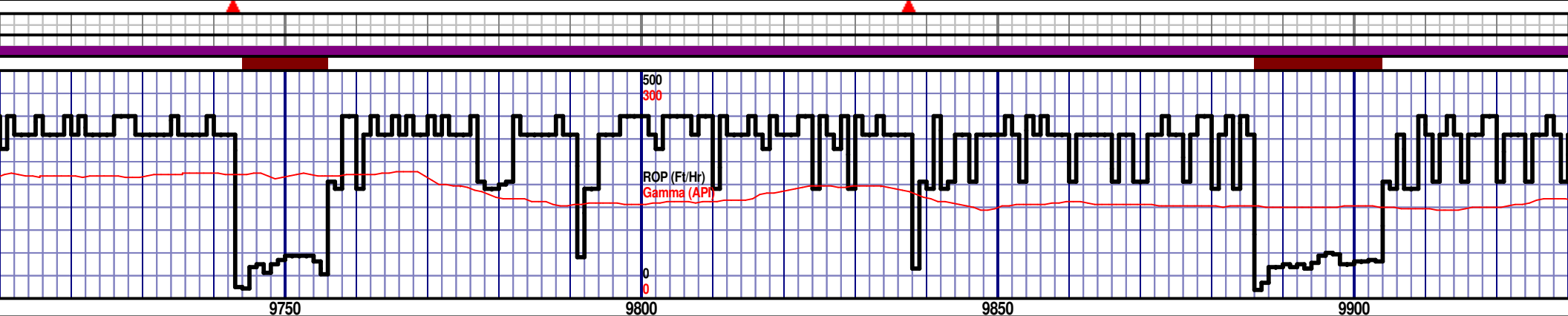
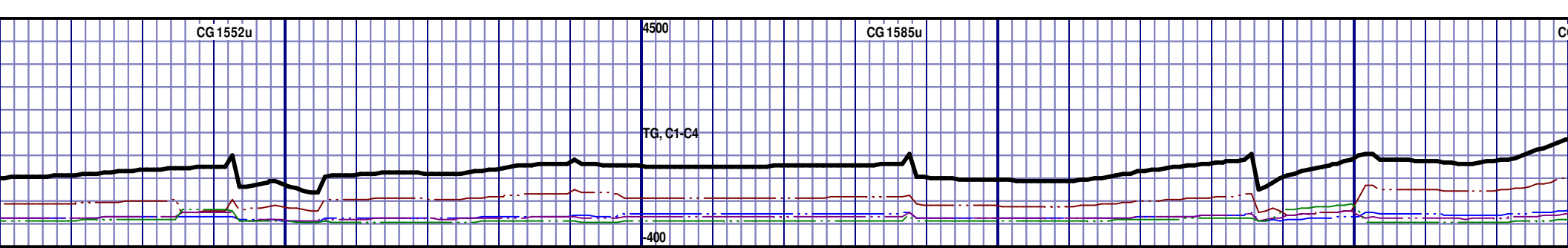


MD 9495 TVD 7176.16 INC 91.02 AZ 178.57 VS 2420.27	CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR INCLUS, CALC NODULES, BENT, NO VIS FRACT, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	MRL; 45%; DK GRY TO GRY, BRITTLE TO HARD, SH LAMIN, PYR INCLUS, BENT, CALC NODULES, NO VIS FRACT, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	MRL; 45%; DK GRY TO GRY, BRITTLE TO HARD, SH LAMIN, PYR INCLUS, CALC NODULES, NO VIS FRACT, INTRXLN POR, 5% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, CALC NODULES, NO VIS FRACT, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, CALC NODULES, NO VIS FRACT, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR
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MD 9495 TVD 7176.16
INC 91.02 AZ 178.57
VS 2420.27

MD 9590 TVD 7177.13
INC 87.81 AZ 178.29
VS 2514.66

MD 9685 TVD 7180
INC 88.74 AZ 175.97
VS 2608.75



LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, NO VIS FRACT, INTRXLN POR, 1% YLW IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

CHK; 55%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

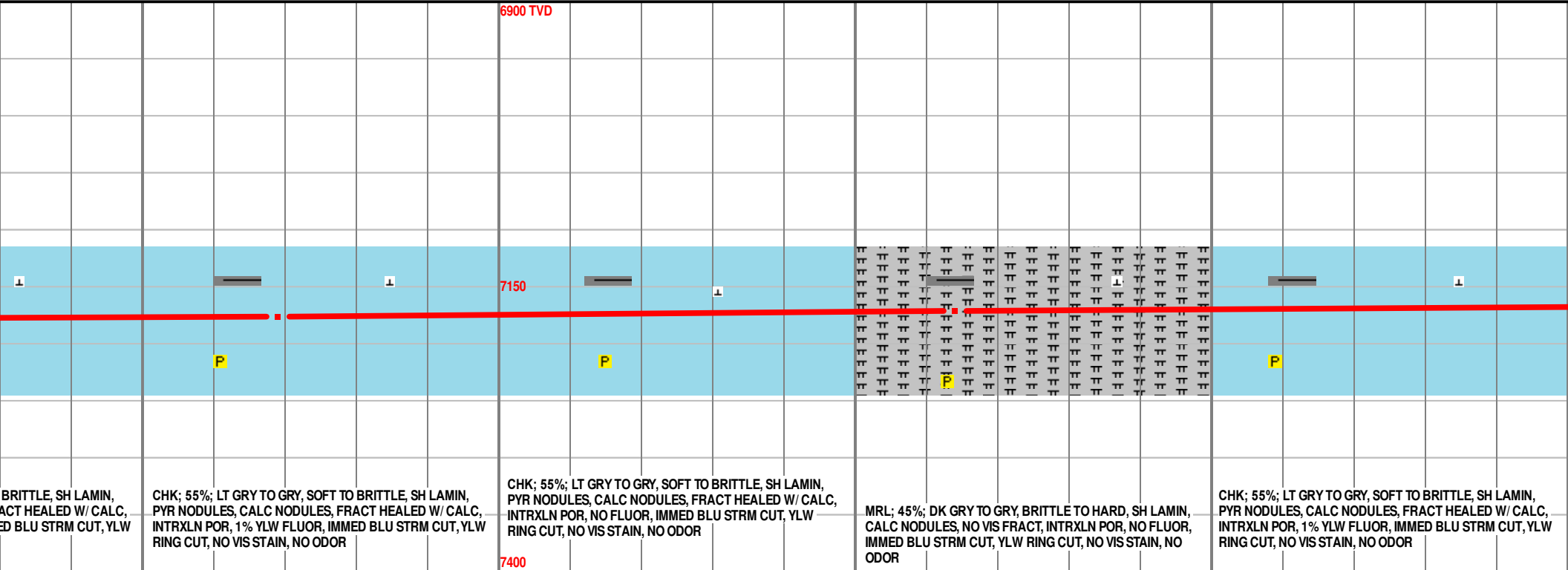
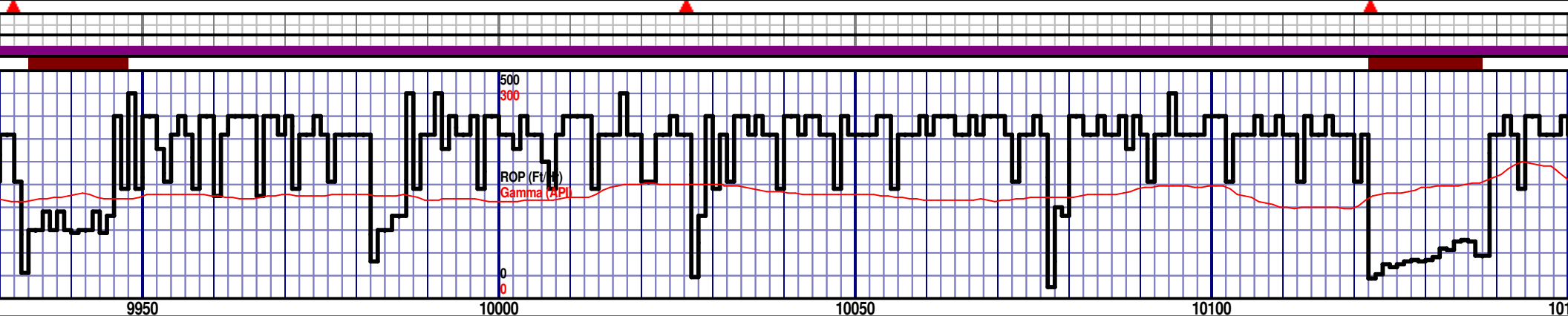
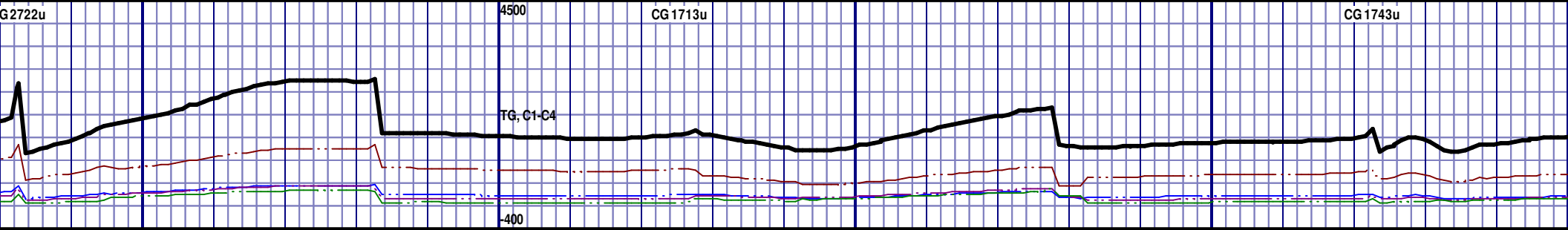
MRL; 45%; DK GRY TO GRY, BRITTLE TO HARD, SH LAMIN, CALC NODULES, NO VIS FRACT, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

CHK; 55%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

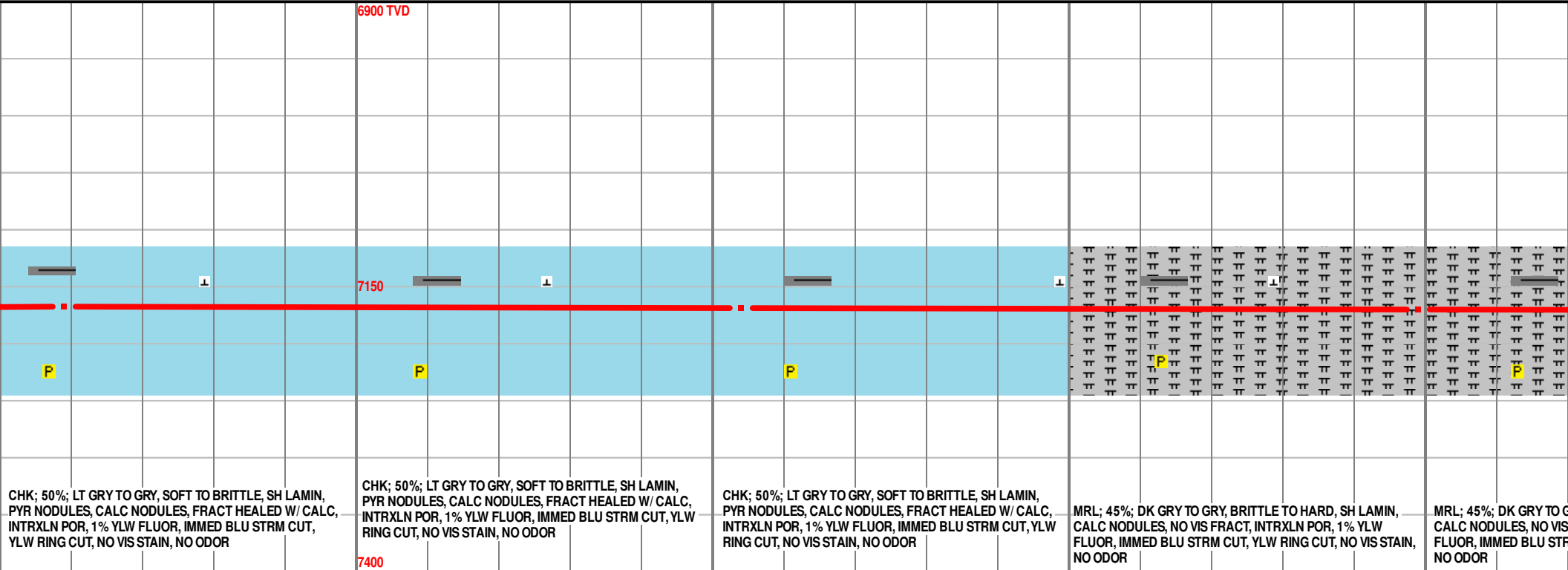
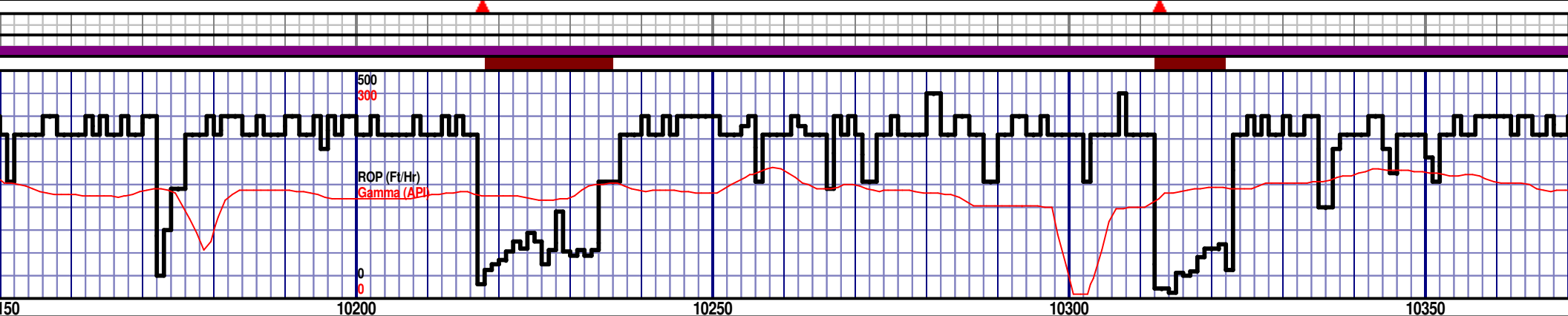
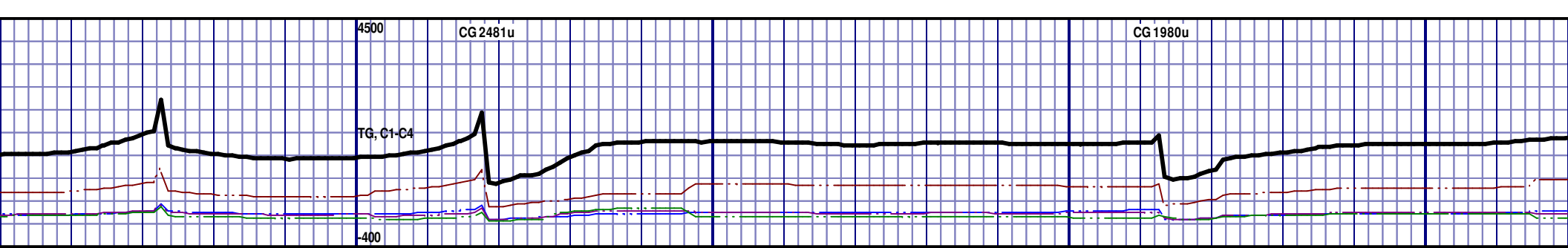
MD 9780 TVD 7180.15
INC 91.08 AZ 176.14
VS 2702.63

MD 9875 TVD 7178.41
INC 91.02 AZ 176.12
VS 2796.51



MD 9969 TVD 7175.68
INC 92.31 AZ 177.48
VS 2889.54

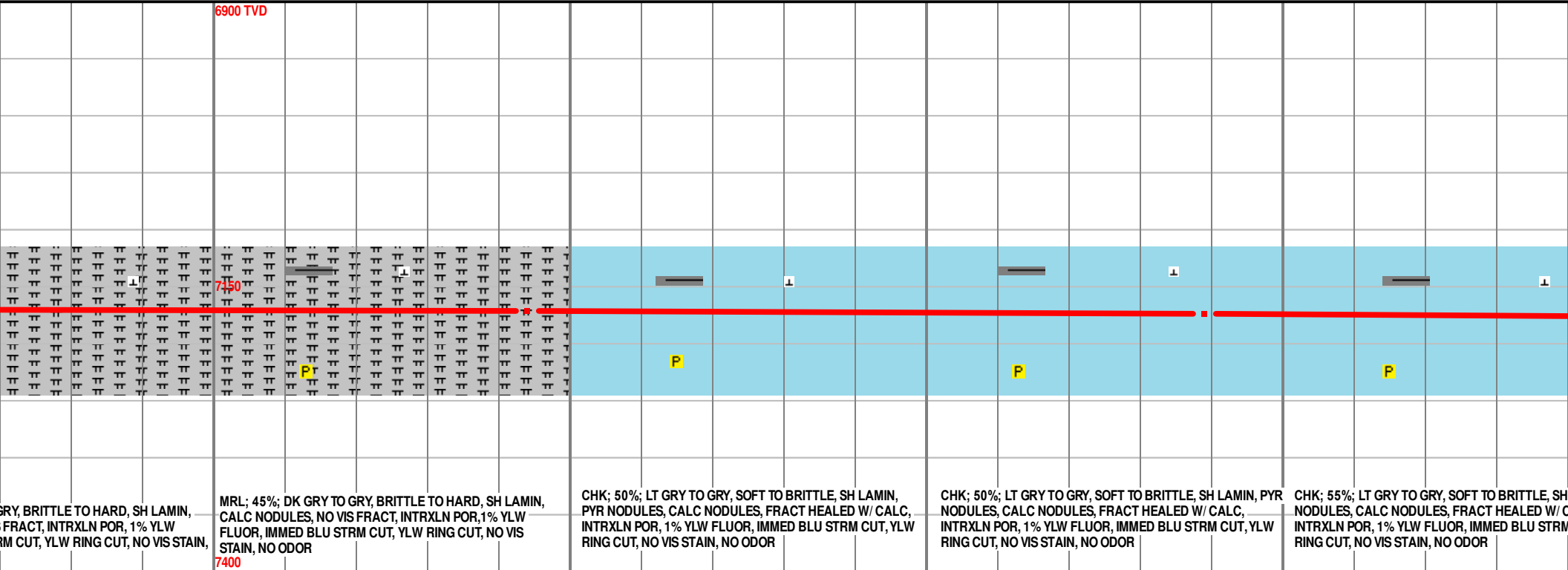
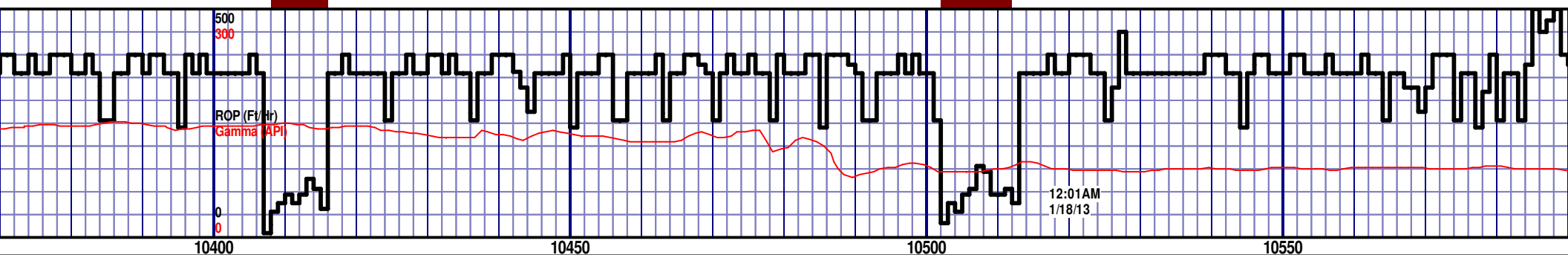
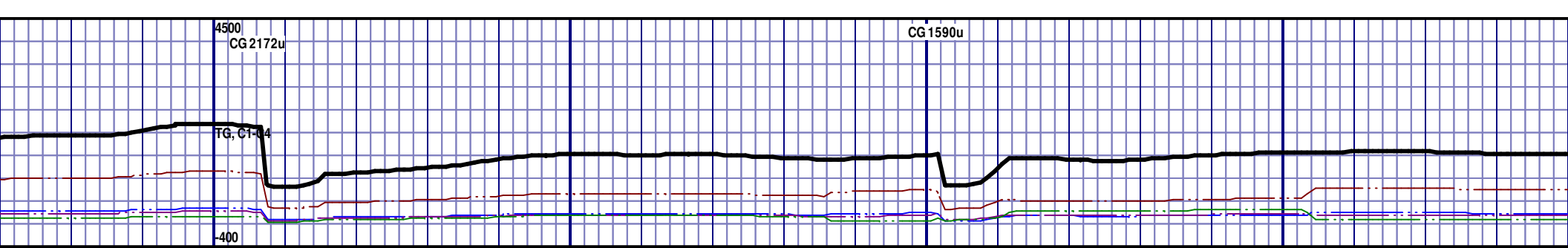
MD 10064 TVD 7171.38
INC 92.87 AZ 177.22
VS 2983.63



MD 10159 TVD 7167.83
INC 91.42 AZ 177.57
VS 3077.76

MD 10254 TVD 7168.26
INC 88.06 AZ 177.71
VS 3172

MD 10349 TVD 7170.48
INC 89.26 AZ 176.39
VS 3266.09



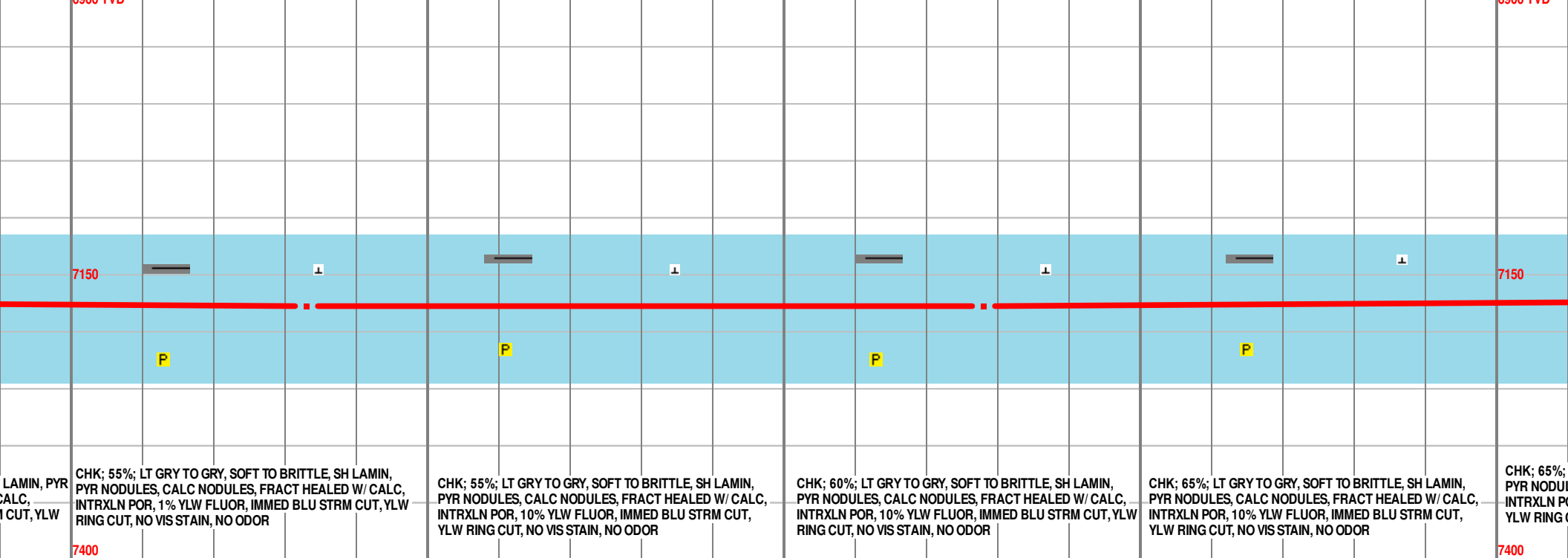
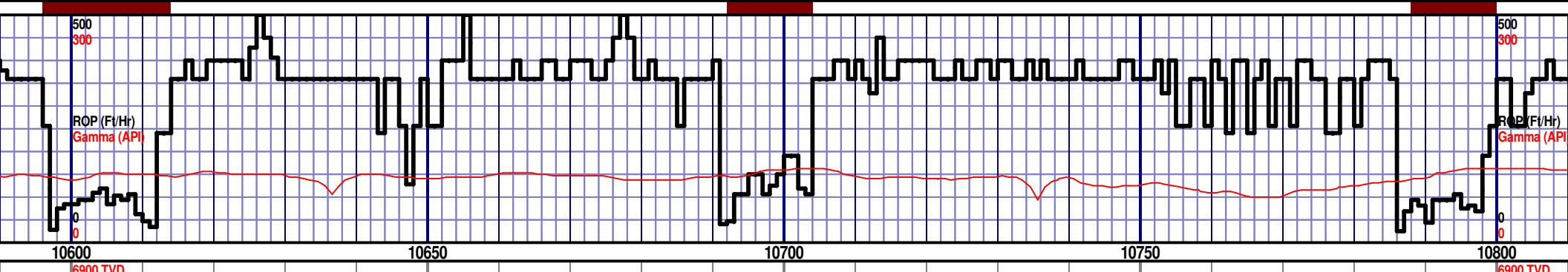
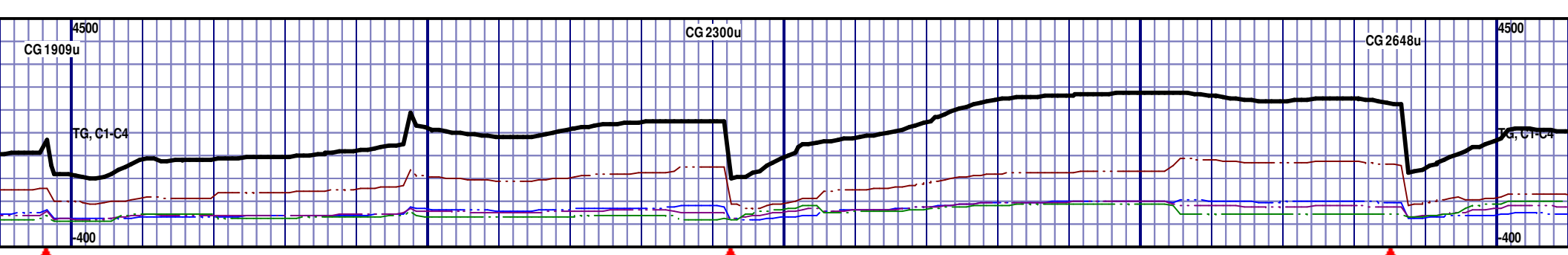
GRY, BRITTLE TO HARD, SH LAMIN,
FRACT, INTRXLN POR, 1% YLW
RM CUT, YLW RING CUT, NO VIS STAIN,

MRL; 45%; DK GRY TO GRY, BRITTLE TO HARD, SH LAMIN,
CALC NODULES, NO VIS FRACT, INTRXLN POR, 1% YLW
FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS
STAIN, NO ODOR

CHK; 50%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN,
PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC,
INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW
RING CUT, NO VIS STAIN, NO ODOR

CHK; 50%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR
NODULES, CALC NODULES, FRACT HEALED W/ CALC,
INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW
RING CUT, NO VIS STAIN, NO ODOR

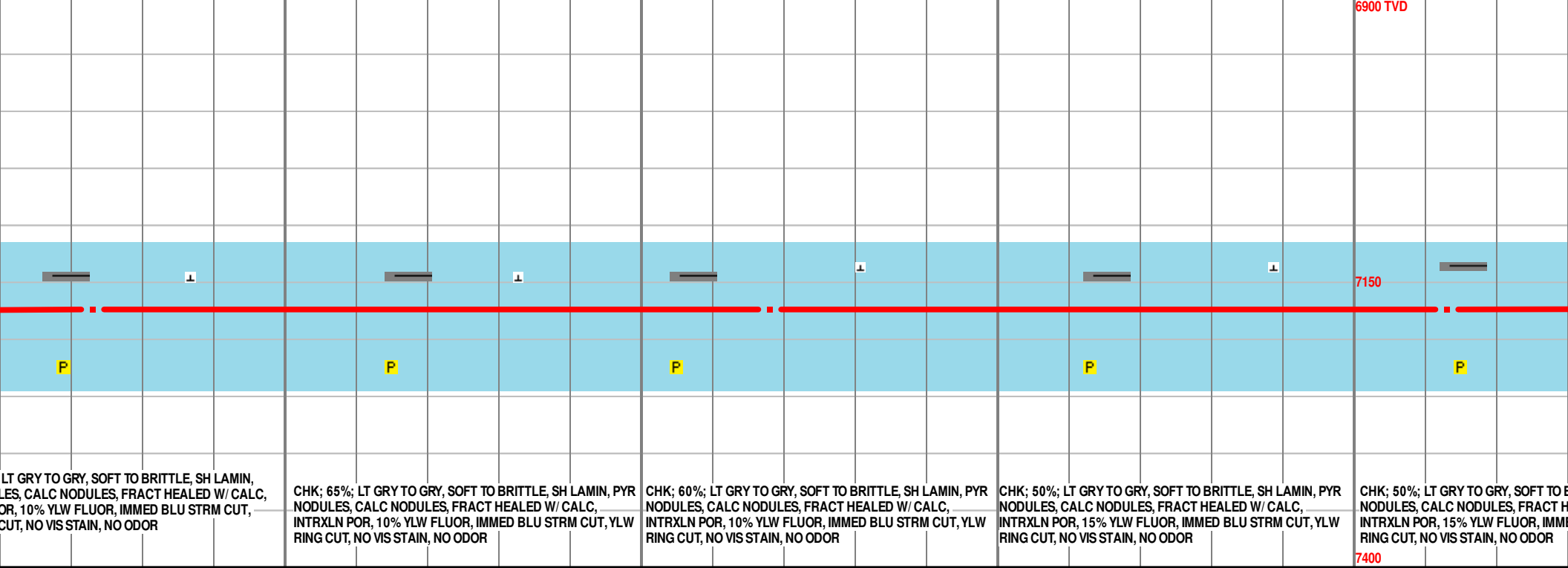
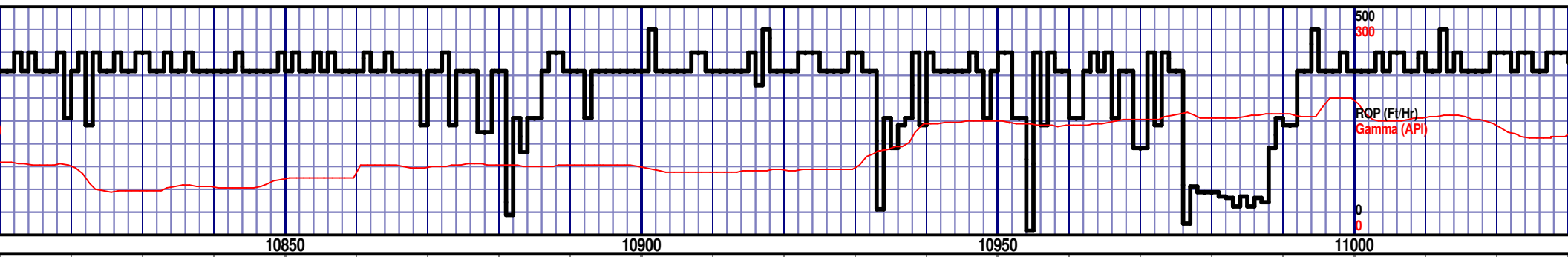
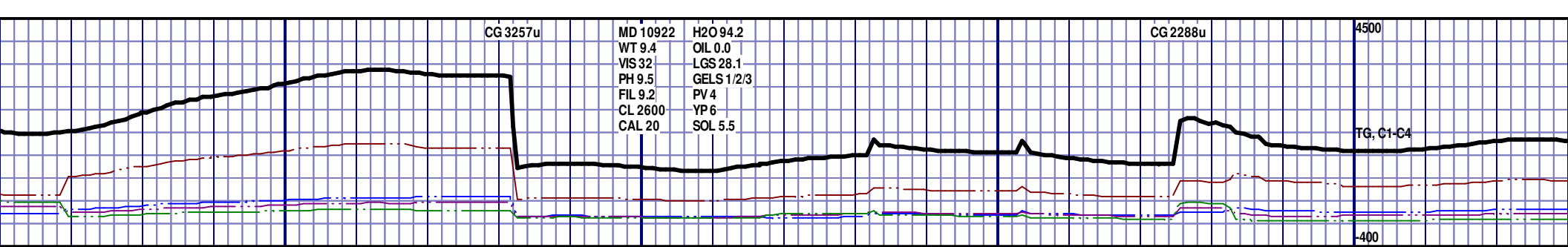
CHK; 55%; LT GRY TO GRY, SOFT TO BRITTLE, SH
NODULES, CALC NODULES, FRACT HEALED W/ C
INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM
RING CUT, NO VIS STAIN, NO ODOR

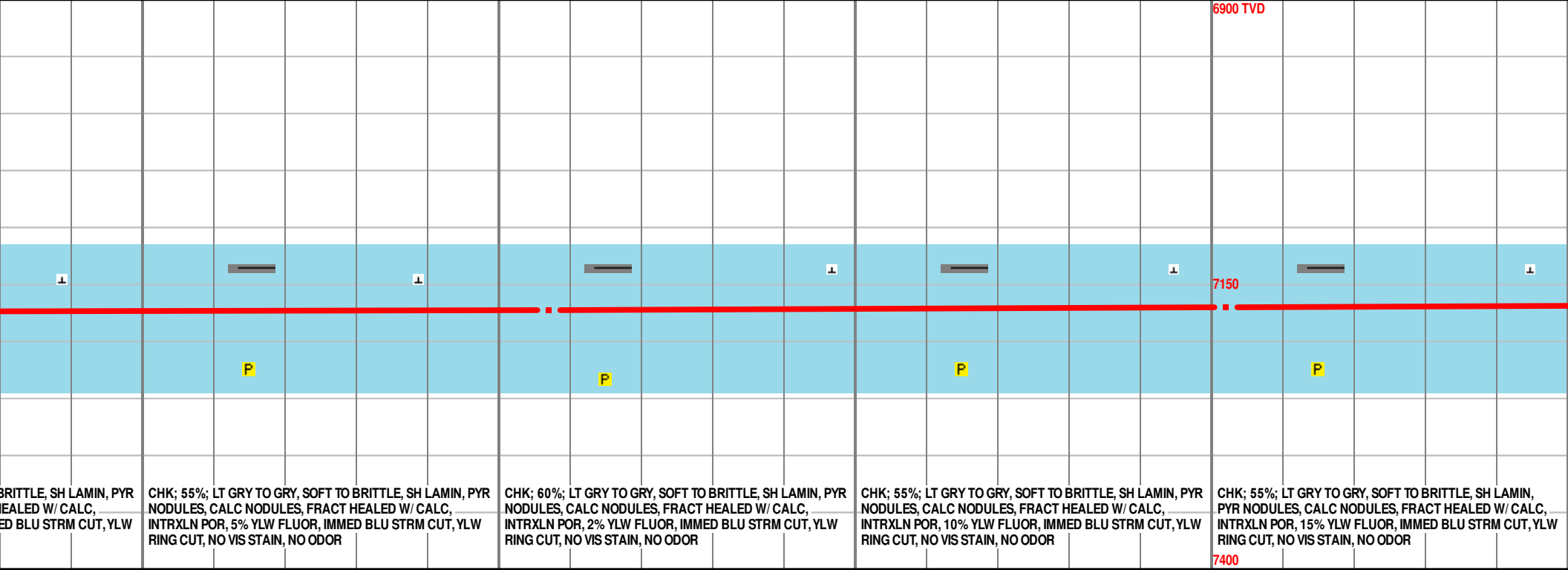
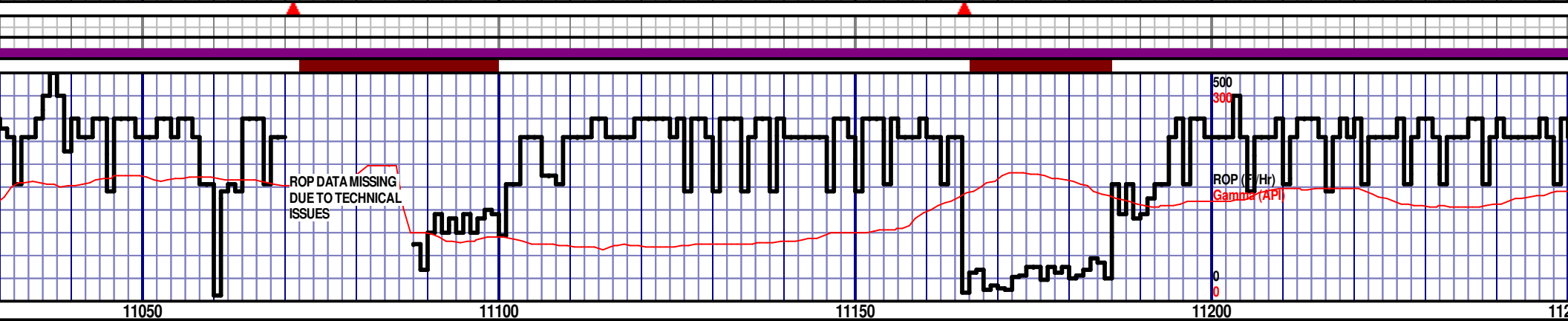
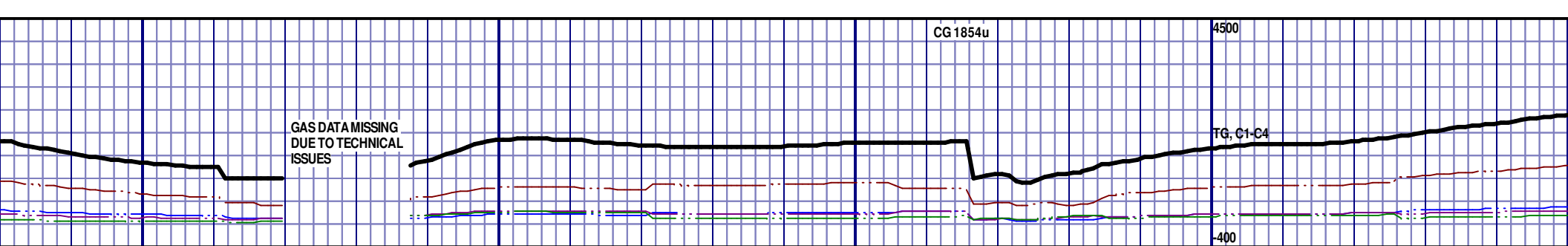


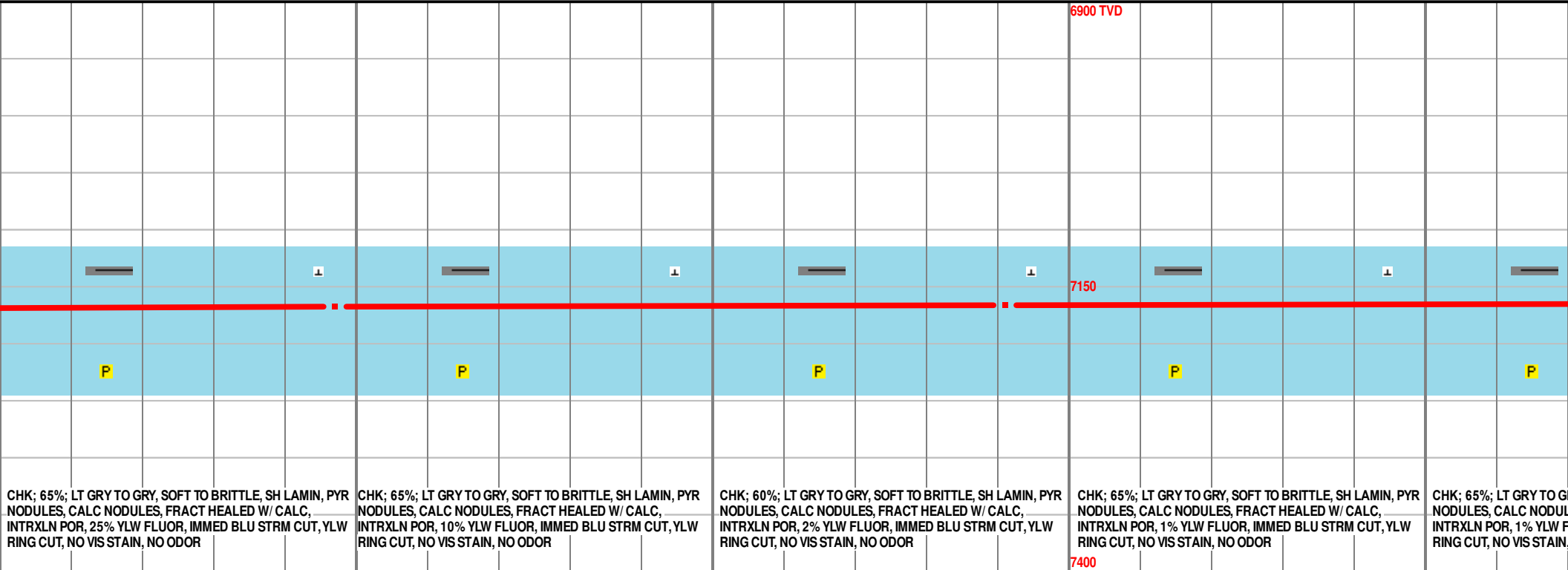
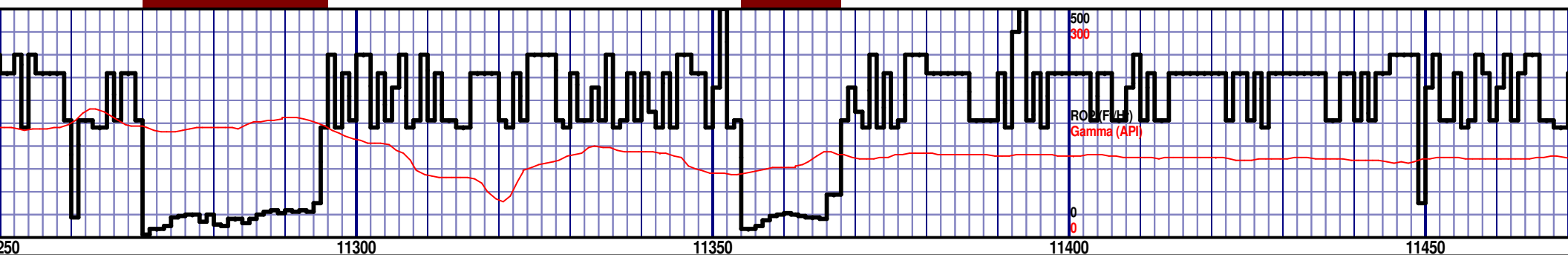
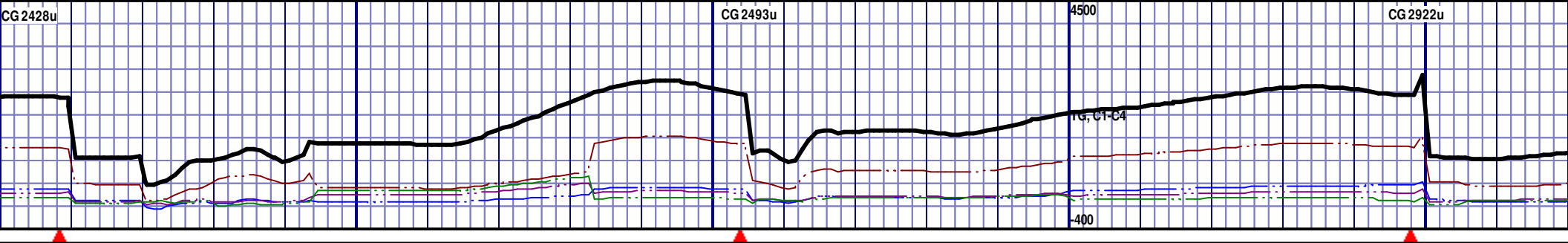
CHK; 55%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 55%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 65%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR	CHK; 65%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR
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MD 10633 TVD 7177.23
INC 88.46 AZ 178.26
VS 3548.18

MD 10728 TVD 7177.05
INC 91.76 AZ 181.27
VS 3642.78







CHK; 65%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 25% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

CHK; 65%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 10% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

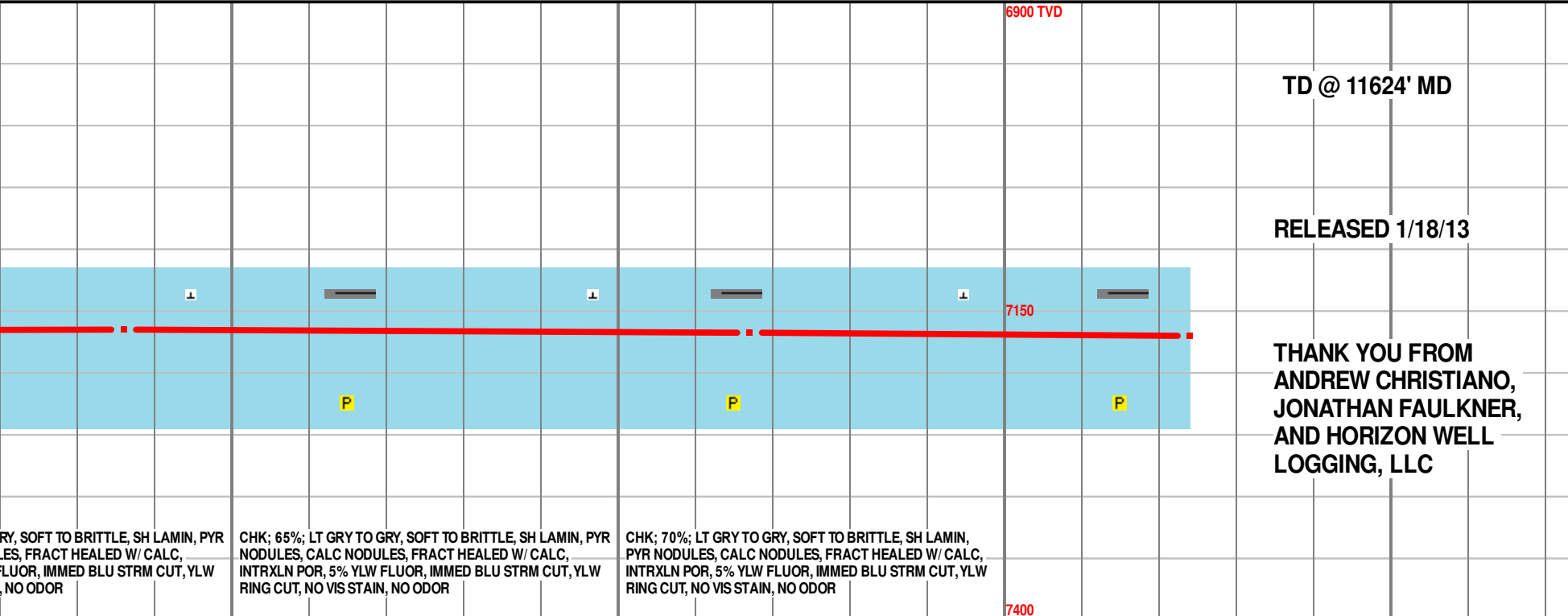
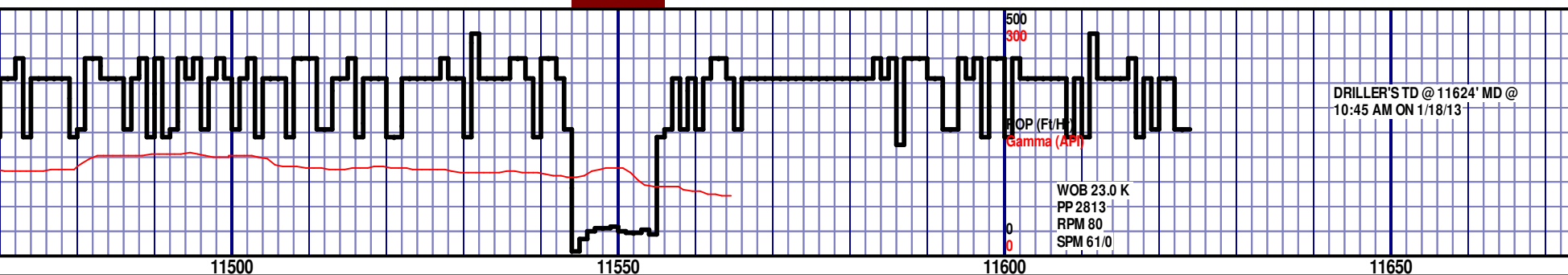
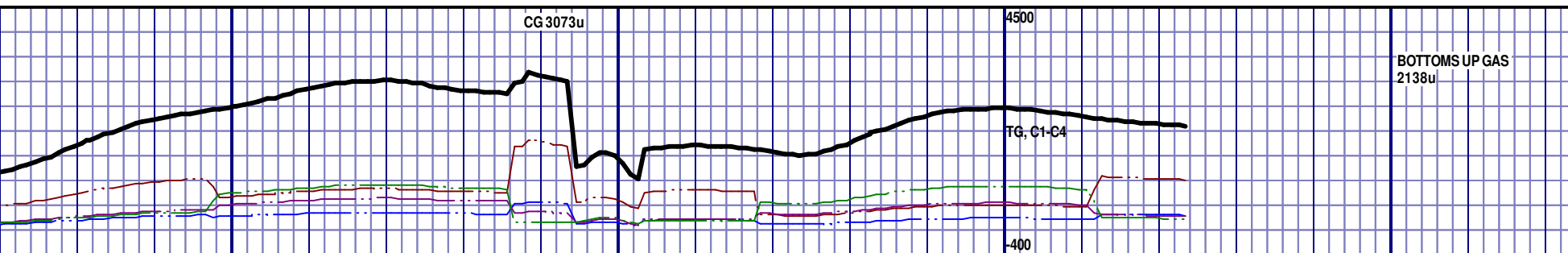
CHK; 60%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 2% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

CHK; 65%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

CHK; 65%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC, INTRXLN POR, 1% YLW FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, NO ODOR

MD 11297 TVD 7167.53
INC 91.84 AZ 180.97
VS 4206.56

MD 11391 TVD 7165.71
INC 90.37 AZ 197.96
VS 4300.26



RY, SOFT TO BRITTLE, SH LAMIN, PYR
LES, FRACT HEALED W/ CALC,
FLUOR, IMMED BLU STRM CUT, YLW
NO ODOR

CHK; 65%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN, PYR
NODULES, CALC NODULES, FRACT HEALED W/ CALC,
INTRXLN POR, 5% YLW FLUOR, IMMED BLU STRM CUT, YLW
RING CUT, NO VIS STAIN, NO ODOR

CHK; 70%; LT GRY TO GRY, SOFT TO BRITTLE, SH LAMIN,
PYR NODULES, CALC NODULES, FRACT HEALED W/ CALC,
INTRXLN POR, 5% YLW FLUOR, IMMED BLU STRM CUT, YLW
RING CUT, NO VIS STAIN, NO ODOR

MD 11486 TVD 7165.05
INC 90.43 AZ 180.93
VS 4394.98

MD 11567 TVD 7166.88
INC 86.98 AZ 178.36
VS 4475.61

PTB: MD 11624 TVD 7169.88
INC 86.98 AZ 178.36
VS 4532.16