



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: Joe Klumpstra &
Kaitlyn Bertram
Log Interval: 7000' MD to 14600' MD
Start Date: November 26, 2014
Release Date: December 02, 2014


Well Information


Well Name: Oscar Y10-72-1HC HZ

Location: 10,3-T2N-R64W
2380' FSL, 785' FEL


County: Weld
State: Colorado


Drilling Rig: H&P 277
Total Depth: 14600' MD
TD Date: December 02, 2014
Formation: Codell
KB Elevation: 4952'
GR Elevation: 4928'
API Number: 05-123-37942-0000

TG (Units) 

C1 (units) 

C2 (units) 

C3 (units) 

C4 

ROP and Gamma

ROP (Ft/Hr) _____

Gamma (API) _____

900
350

SLIDE=RED
ROTATE=WHITE

ROP SCALE: 0 TO 900

GAMMA SCALE: 0 TO 350

ROP (Ft/Hr)
Gamma (API)

(GAMMA DATA AS RECEIVED)

30

8100 CG 4795u DEPTH 6848' WT 10.80 VIS 42 PH 9.3 FIL 7.8 CL 900 CAL 40

TC 01.04

H2O 89.2	PV 15
OIL 0.0	YP 11
LGS 23.93	CK 1/0
GELS 4/13/20	SOL 10.6

CG 2036u

900	WOB 7.4K
350	PP 3696
	RPM 0
	SPM 69/69

[illegible]

Depth

50

7000

7050

Year	1990	1995	2000	2005	2010	2015	2020
Population (millions)	1.2	1.5	1.8	2.1	2.4	2.7	3.0
GDP (billions of dollars)	0.5	1.0	1.5	2.0	2.5	3.0	3.5
Life expectancy (years)	55	60	65	70	75	80	85

Photographs

NIOBRARA C CHALK (6980' MD -7010' MD)

NIOBRARA C MARL (7040' MD -7070' MD)

NIOBRARA D Chalk (7070' MD - 7100' MD)

Lithology %

6850 TVD

NOBLE ENERGY INC.
OSCAR Y10-72- 1HC HZ
10,3-T2N-R64W
2380' FSL, 785' FEL
WELD CO., CO

H&P 277

LOGGERS:
JOE KLUMPSTRA
KAITLYN BERTRAM

7150

COMMENCED LOGGING @ 7000' MD
ON 11/26/2014 @ 7:45PM W/BIT #3,
8.75", SMITH SDi611 MPX, (S/N) JJ6824
IN @ 6848' MD

6850 TVD

NIOBRARA C CHALK
6969' MD 6900' TVD

1000000

NIOBRARA C MARL
7010' MD 6930' TVD

$$\begin{array}{c} \pi \\ \pi \end{array}$$

NIOBRARA D CHALK
7067' MD 6965' TVD

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7010'- 7040': MRL: 60% (CaCO3 30%)
MEDDRKGY - GYSHBLK, SOFT TO
BRITTLE, FREE CALC, TRC FREE
BENT, SCAT PYRC LAMN, IMBD
CALC, 40% FREE CHK, PRED LTGY-
SCAT MEDGY, 5% MIN FLOR, IMMED
BLUE STRM CUT, YLW RING

7040'- 7070': MRL: 80% (CaCO3 48%)
MEDDRKGY - GYSHBLK, SOFT TO
BRITTLE, FREE CALC, TRC FREE
BENT, SCAT PYRC LAMN, IMBD
CALC, 20% FREE CHK, PREL LTGY-
SCAT MEDGY, 5% MIN FLOR, IMMED
BLUE STRM CUT, YLWR RING

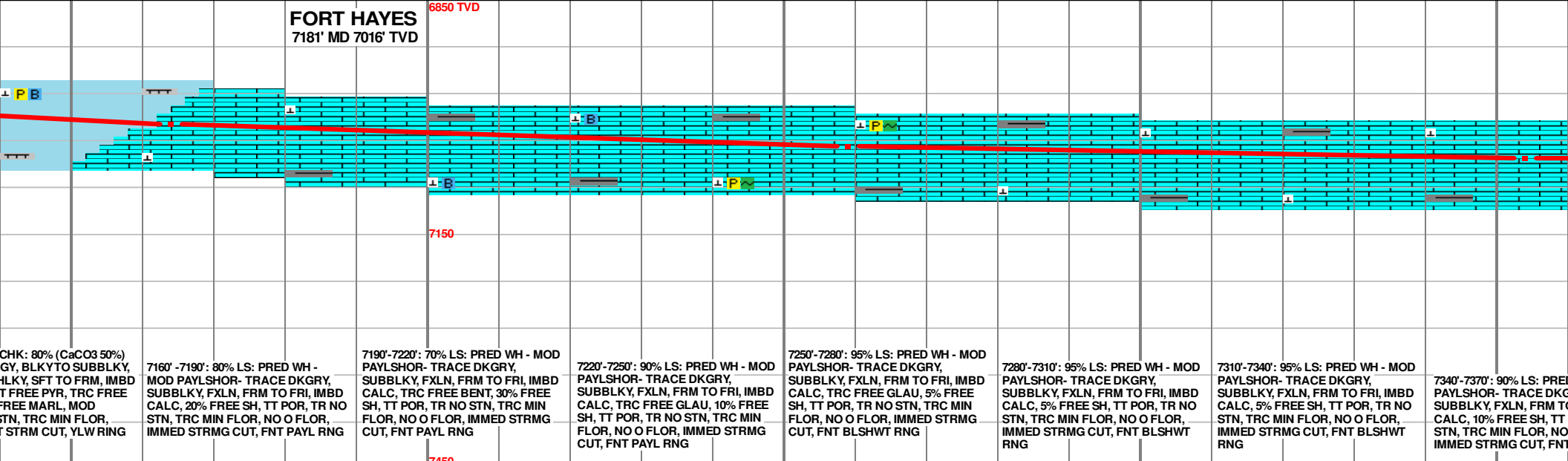
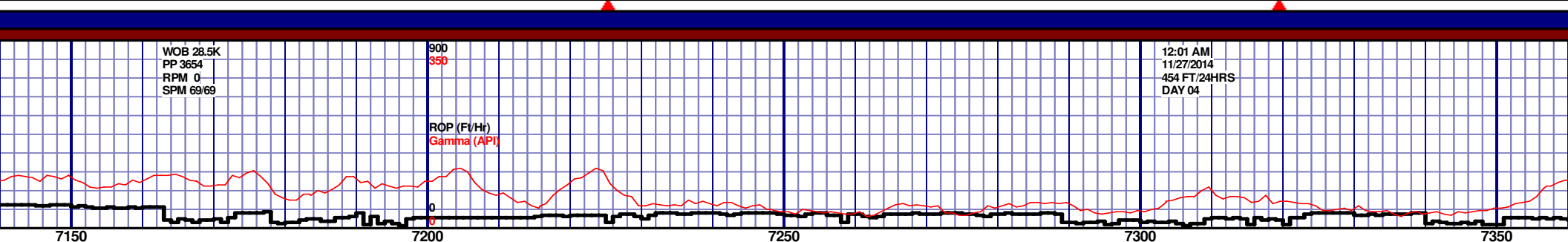
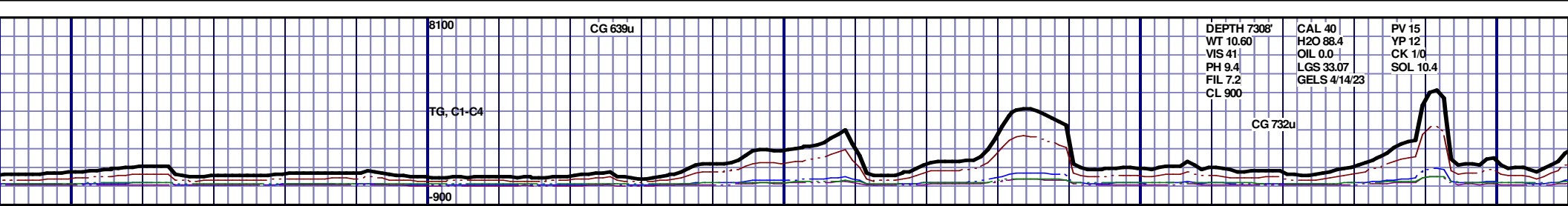
7070'-7100': CHK: 90% (CaCO3 50%)
LTGY- MEDGY, BLKY TO SUBBLKY,
FXLN TO CHLKY, SFT TO FRM, IMBD
CALC, SCAT FREE PYR, TRC FREE
BENT, 10% FREE MARL, MOD
GYSHBLK STN, TRC MIN FLOR,
IMMED WHT STRM CUT, YLW RING

7100'-7130': CHK: 80% (CaCO3 50%)
LTGY- MEDGY, BLKY TO 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 WHT STRM CUT, YLW RING

7130'-7160':
LTGY- MED
FXLN TO CH
CALC, SCA
BENT, 20% F
GYSHBLK S
IMMED WHT

Survey Data

MD 7069 TVD 6966.24
INC 57.42 AZ 0.09
VS 585.3



CHK: 80% (CaCO3 50%)
GY, BLK YTO SUBBLKY,
HLKY, SFT TO FRM, IMBD
T FREE PYR, TRC FREE
FREE MARL, MOD
STN, TRC MIN FLOR,
STRM CUT, YLW RING

7160' - 7190': 80% LS: PRED WH -
MOD PAYLSHOR- TRACE DKGRY,
SUBBLKY, FXLN, FRM TO FRI, IMBD
CALC, 20% FREE SH, TT POR, TR NO
STN, TRC MIN FLOR, NO O FLOR,
IMMED STRMG CUT, FNT PAYL RNG

7190' - 7220': 70% LS: PRED WH - MOD
PAYLSHOR- TRACE DKGRY,
SUBBLKY, FXLN, FRM TO FRI, IMBD
CALC, TRC FREE BENT, 30% FREE
SH, TT POR, TR NO STN, TRC MIN
FLOR, NO O FLOR, IMMED STRMG
CUT, FNT PAYL RNG

7220' - 7250': 90% LS: PRED WH - MOD
PAYLSHOR- TRACE DKGRY,
SUBBLKY, FXLN, FRM TO FRI, IMBD
CALC, TRC FREE GLAU, 10% FREE
SH, TT POR, TR NO STN, TRC MIN
FLOR, NO O FLOR, IMMED STRMG
CUT, FNT PAYL RNG

7250' - 7280': 95% LS: PRED WH - MOD
PAYLSHOR- TRACE DKGRY,
SUBBLKY, FXLN, FRM TO FRI, IMBD
CALC, TRC FREE GLAU, 5% FREE
SH, TT POR, TR NO STN, TRC MIN
FLOR, NO O FLOR, IMMED STRMG
CUT, FNT BLSHWT RNG

7280' - 7310': 95% LS: PRED WH - MOD
PAYLSHOR- TRACE DKGRY,
SUBBLKY, FXLN, FRM TO FRI, IMBD
CALC, 5% FREE SH, TT POR, TR NO
STN, TRC MIN FLOR, NO O FLOR,
IMMED STRMG CUT, FNT BLSHWT
RNG

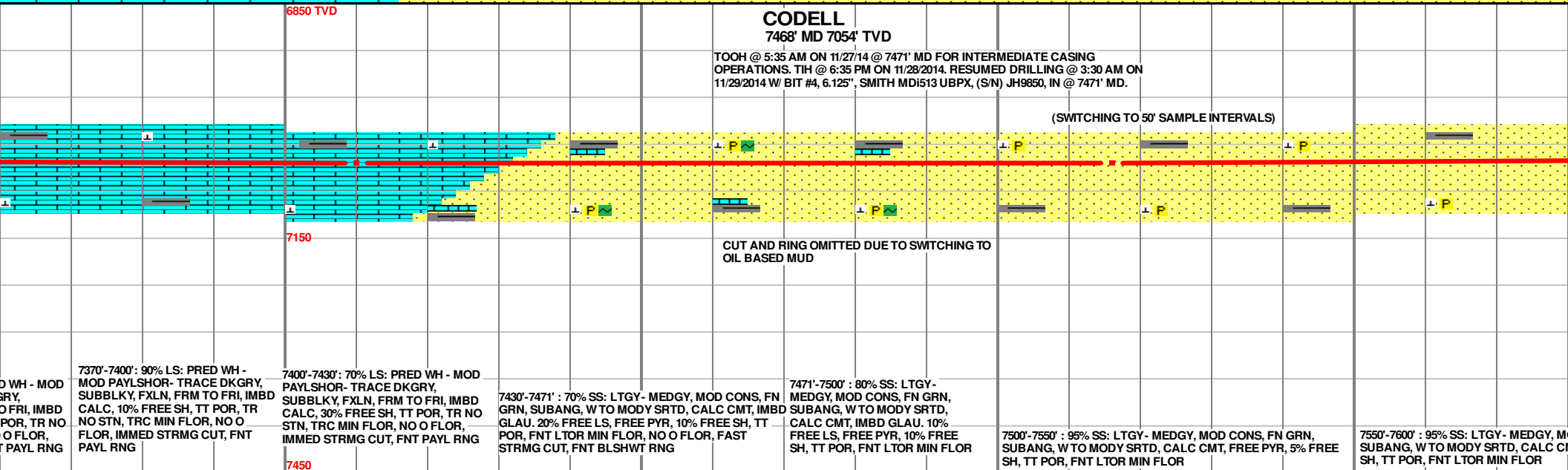
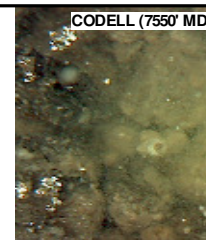
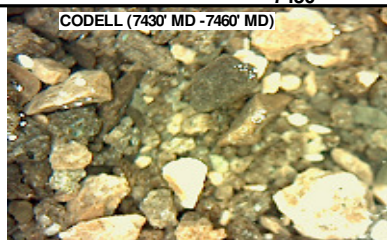
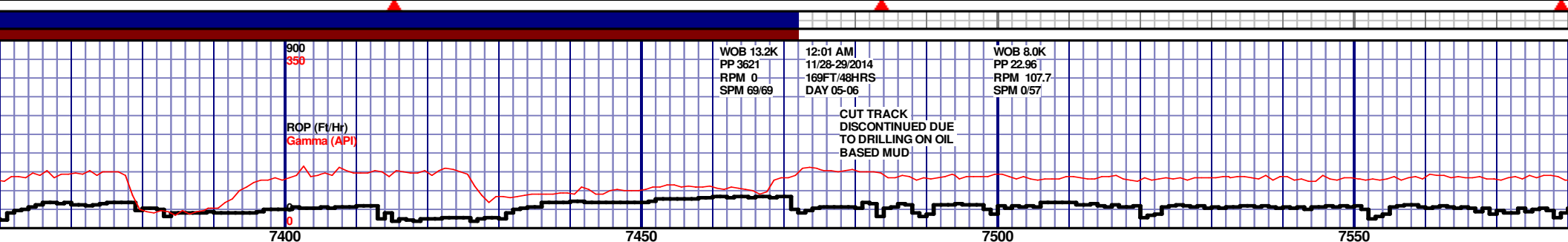
7310' - 7340': 95% LS: PRED WH - MOD
PAYLSHOR- TRACE DKGRY,
SUBBLKY, FXLN, FRM TO FRI, IMBD
CALC, 5% FREE SH, TT POR, TR NO
STN, TRC MIN FLOR, NO O FLOR,
IMMED STRMG CUT, FNT BLSHWT
RNG

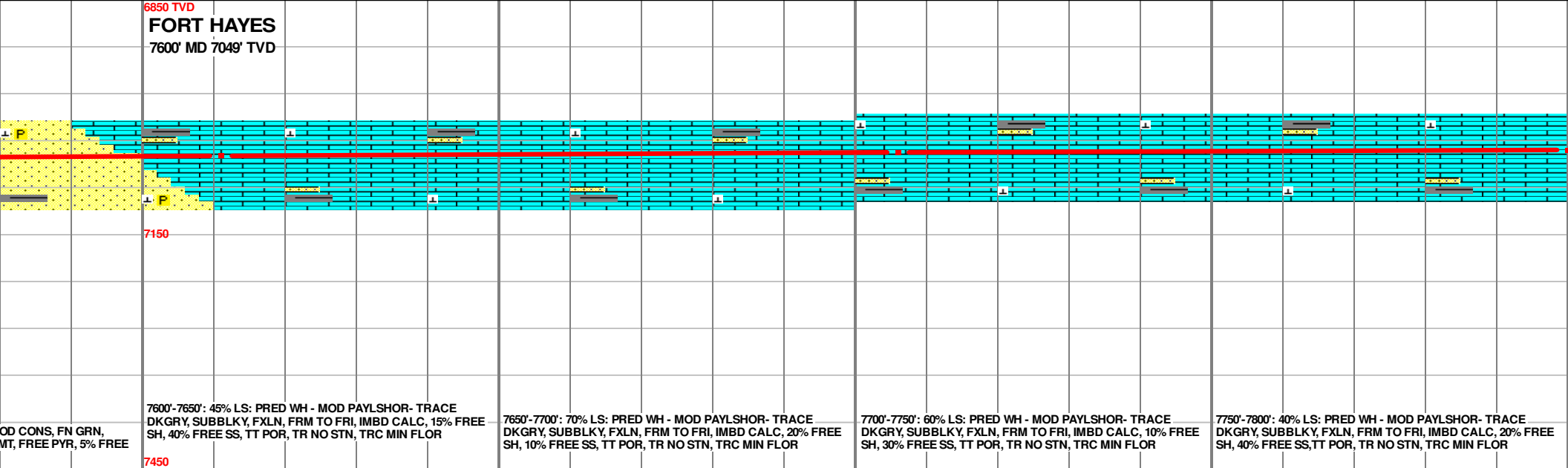
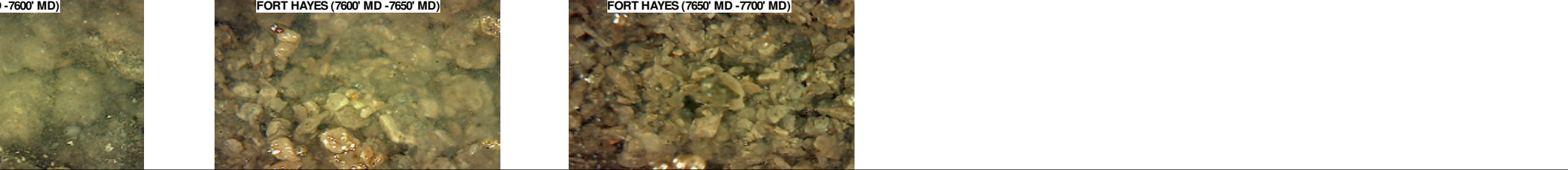
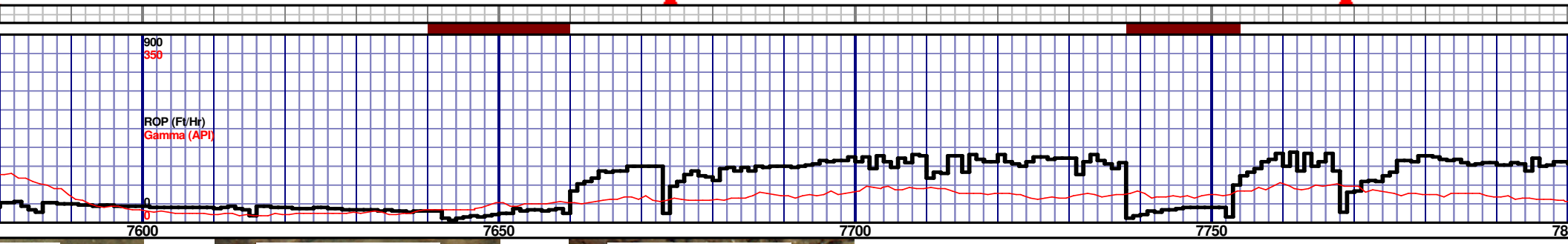
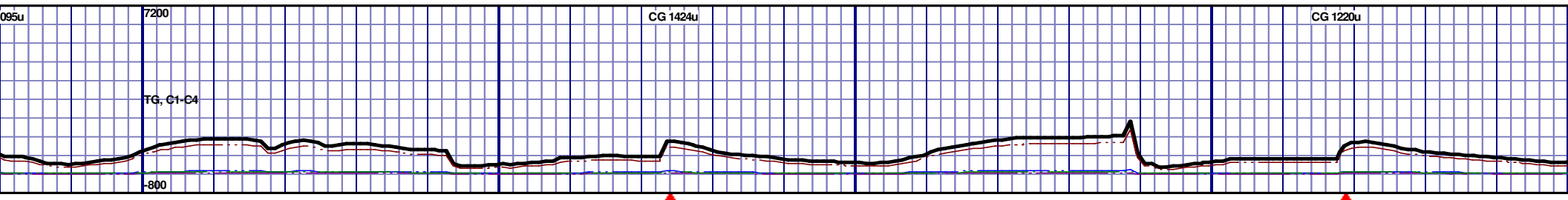
7340' - 7370': 90% LS: PRED WH - MOD
PAYLSHOR- TRACE DKGRY,
SUBBLKY, FXLN, FRM TO FRI, IMBD
CALC, 10% FREE SH, TT
STN, TRC MIN FLOR, NO
IMMED STRMG CUT, FNT

MD 7164 TVD 7009.56
INC 68.24 AZ 359.98
VS 669.68

MD 7259 TVD 7037.95
INC 76.94 AZ 359.86
VS 760.21

MD 735
INC 86
VS 854

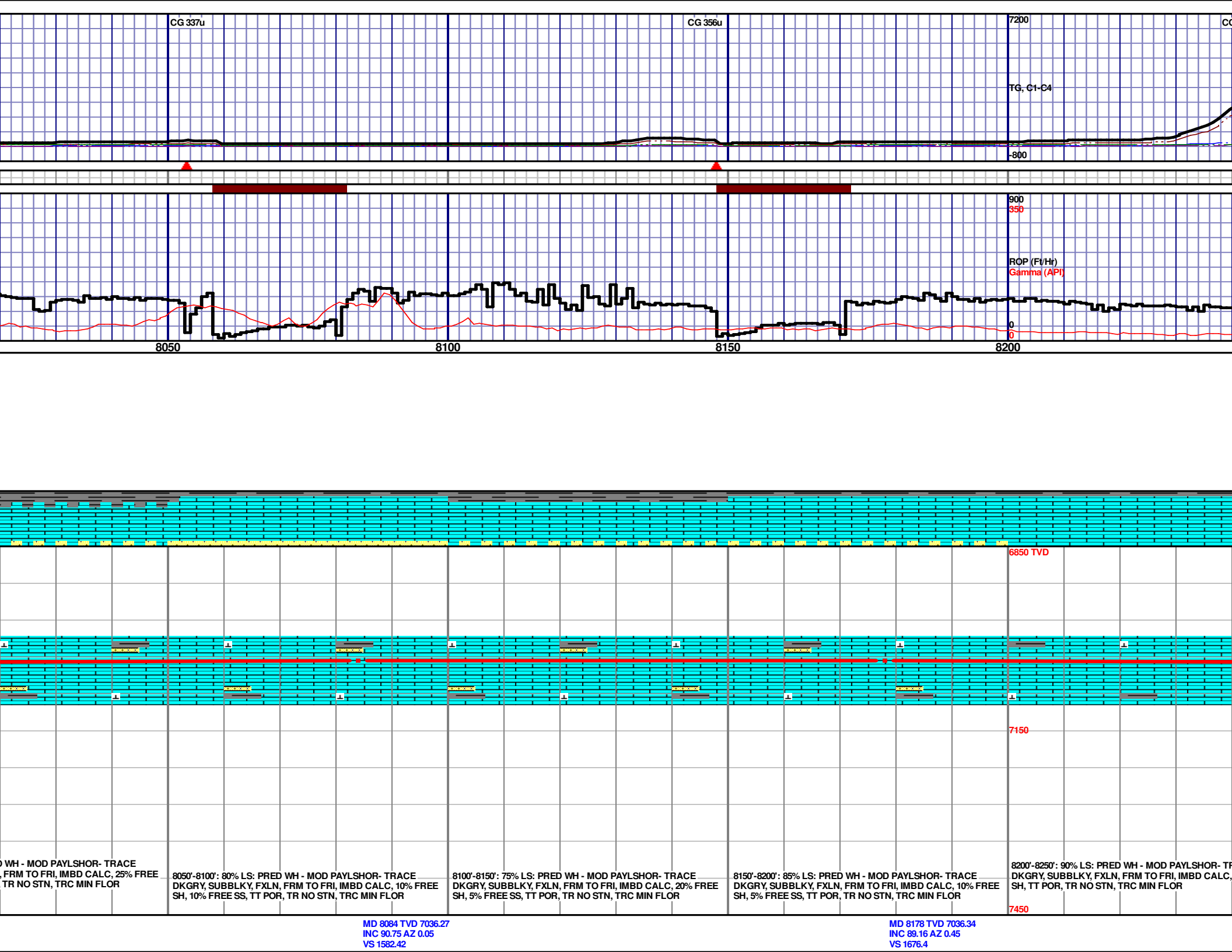


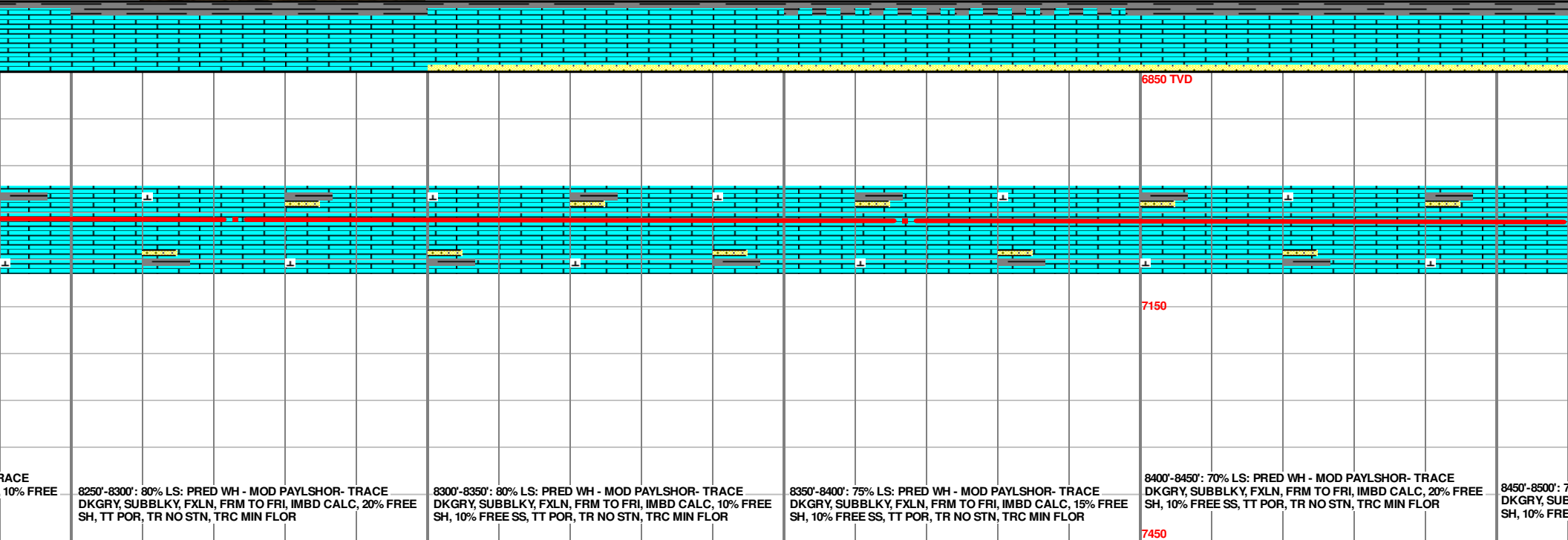
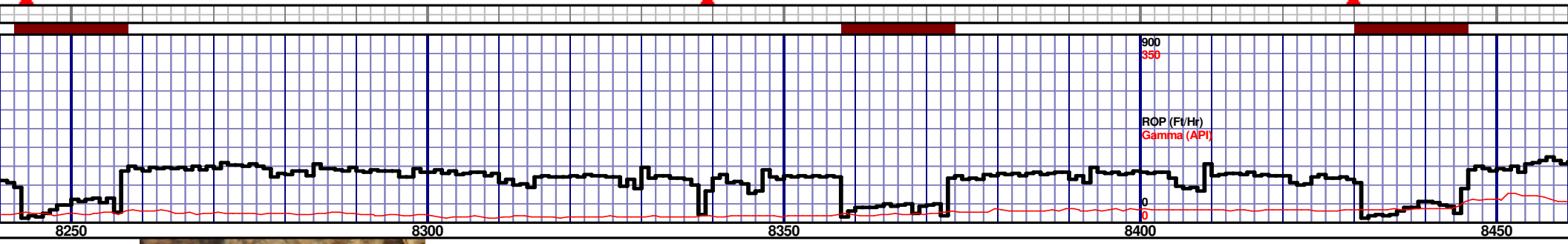
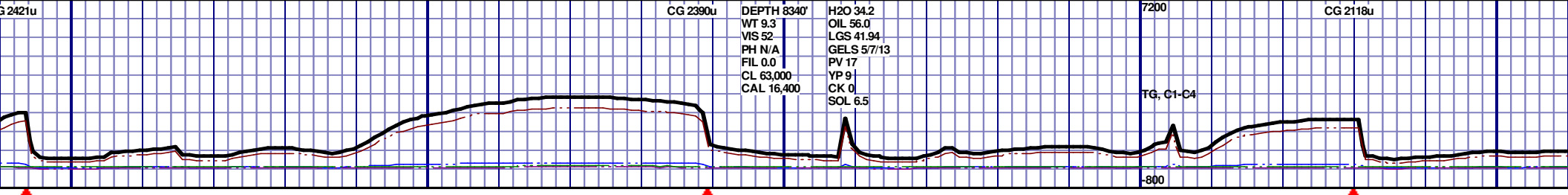


MD 7611 TVD 7049.25
INC 93.65 AZ 356.68
VS 1110.53

MD 7706 TVD 7044.3
INC 92.33 AZ 356.51
VS 1205.09

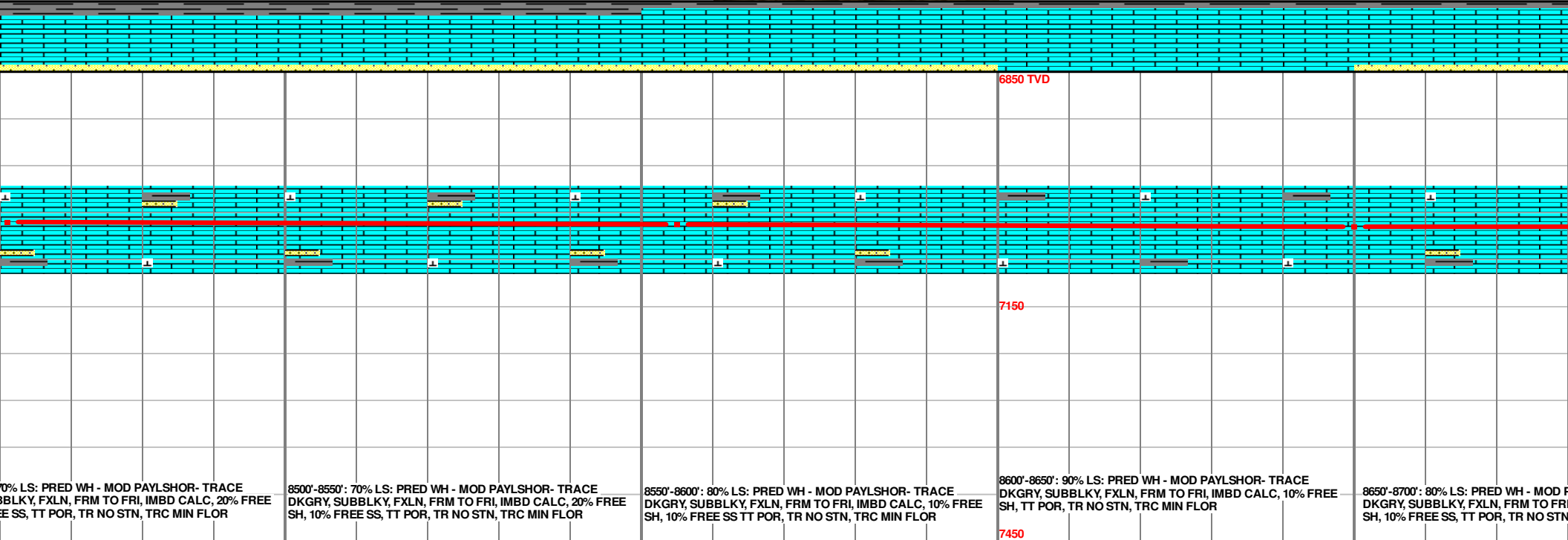
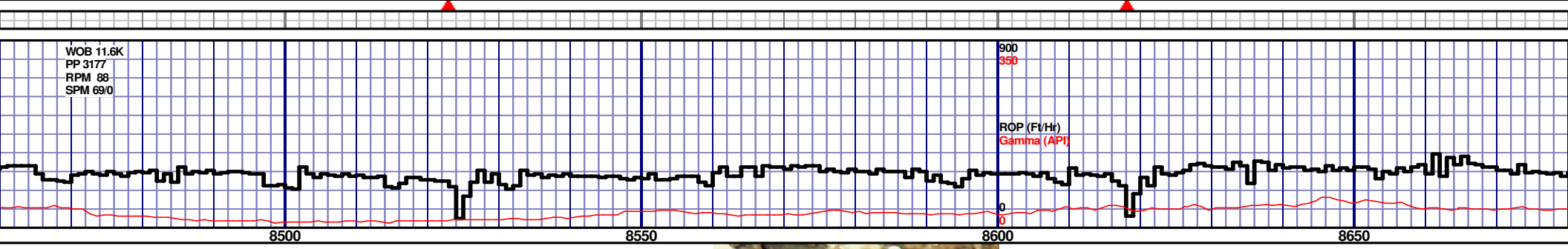
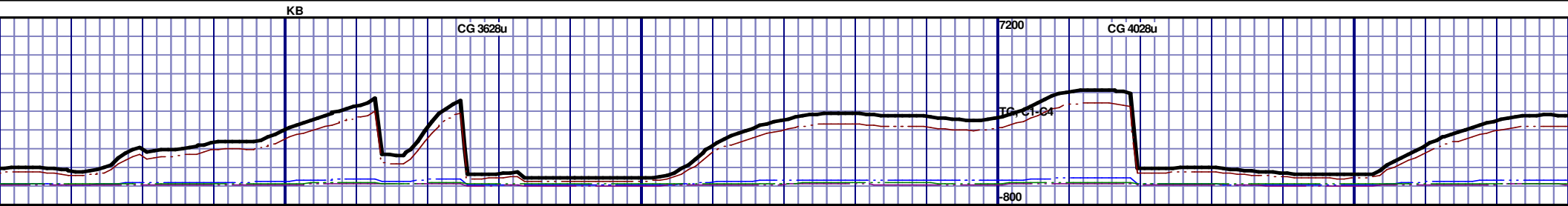


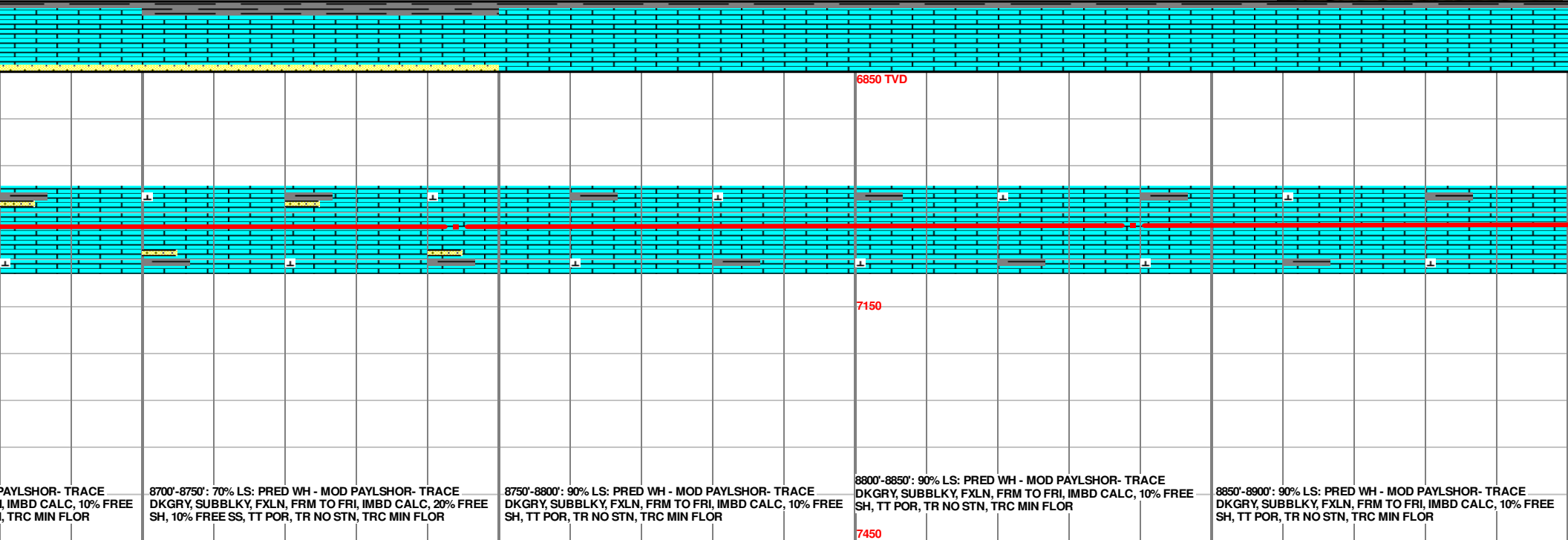
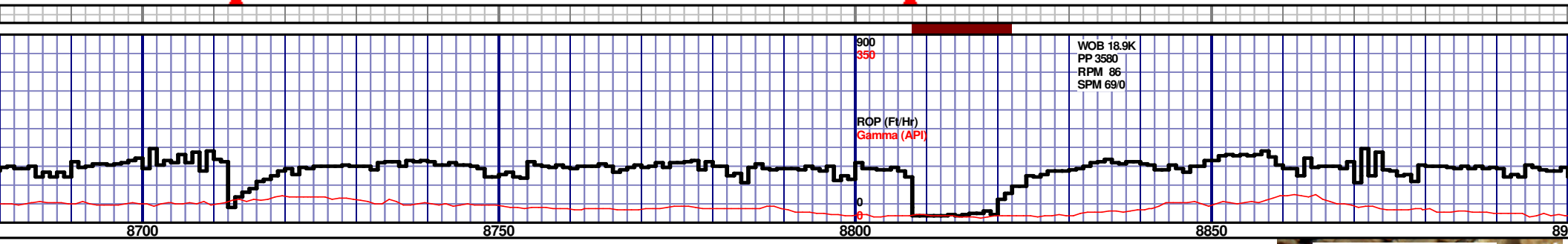
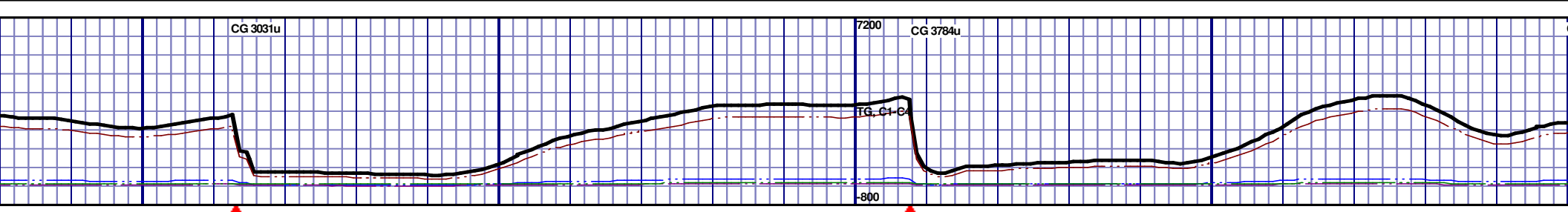




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INC 88.46 AZ 359.91
VS 1771.37

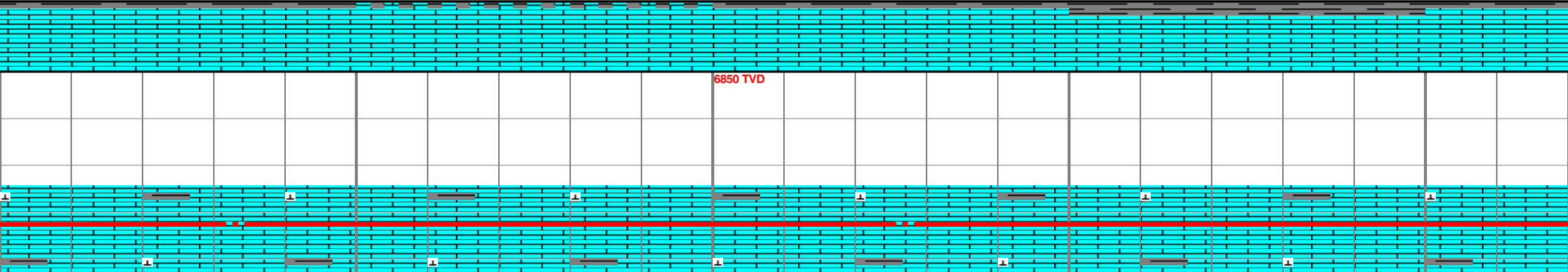
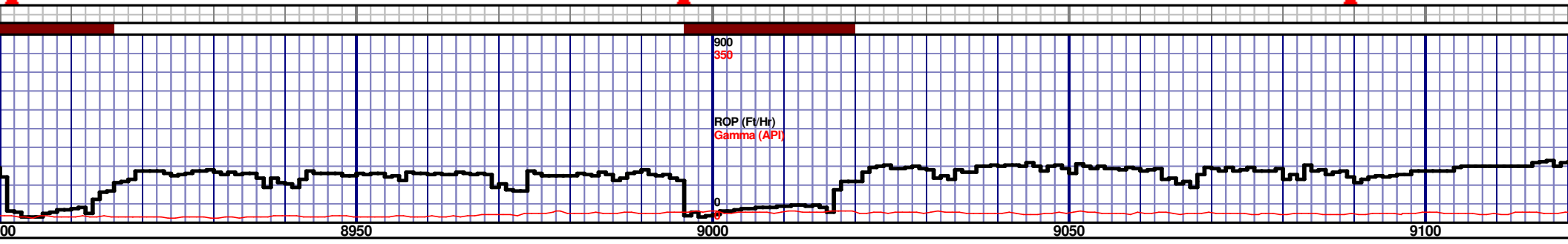
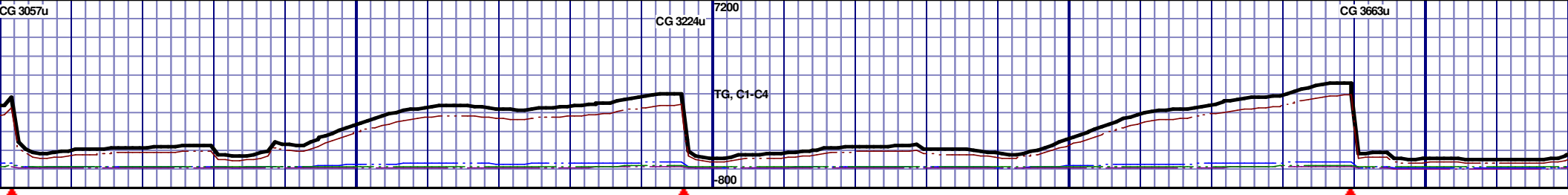
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VS 1865.32





MD 8744 TVD 7048.36
INC 90.84 AZ 358.43
VS 2241.76

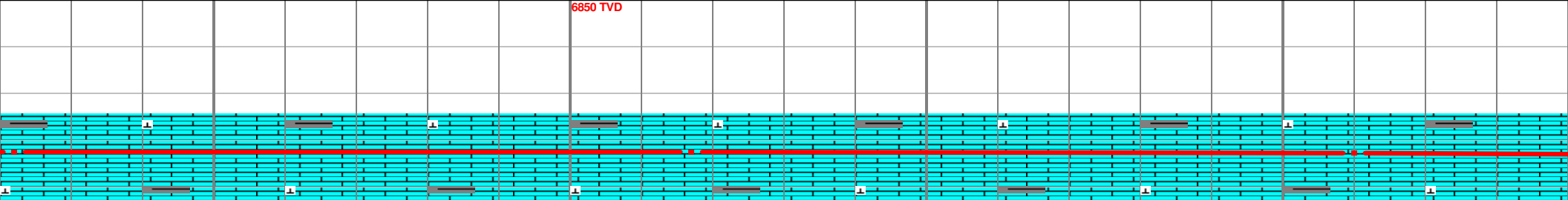
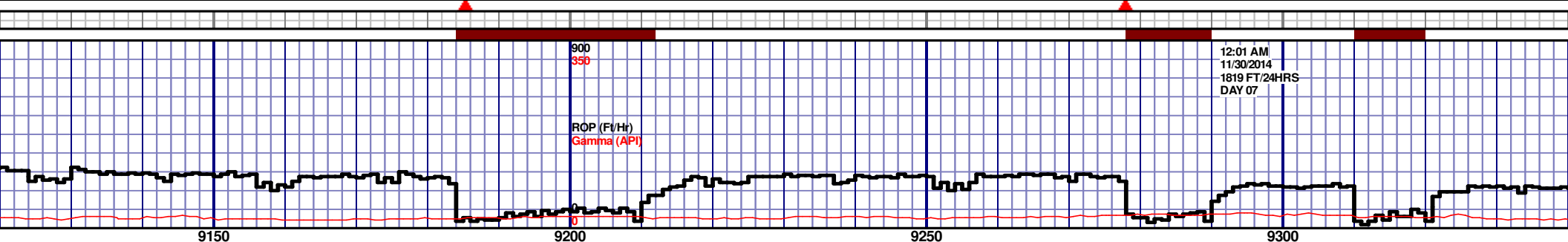
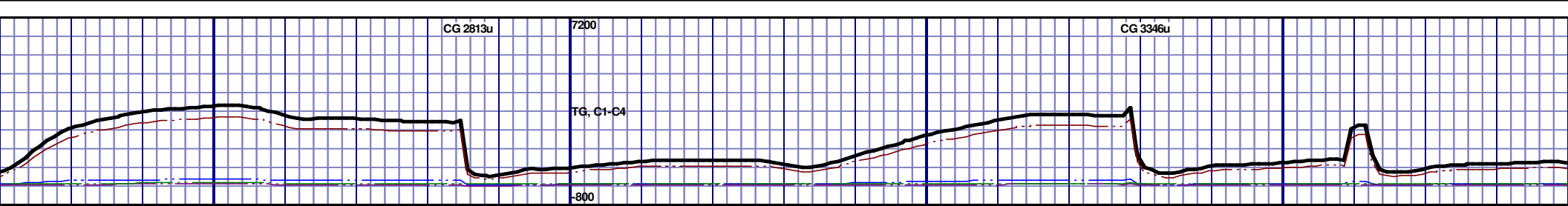
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INC 91.63 AZ 358.99
VS 2336.65



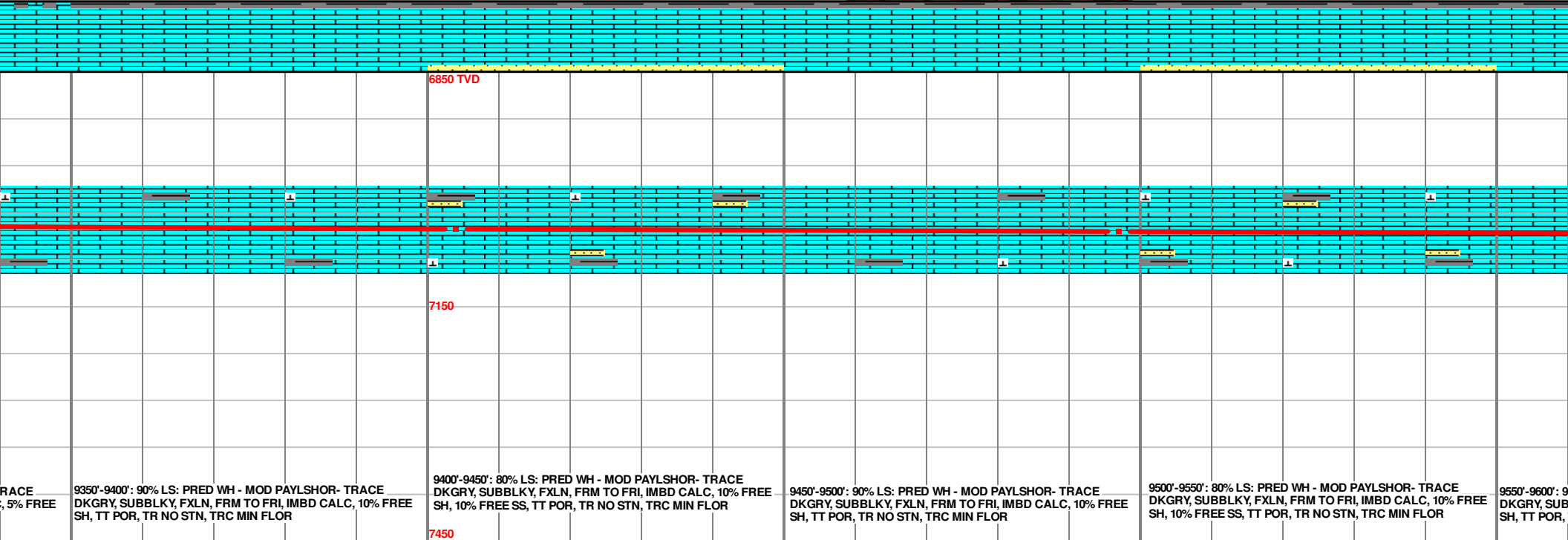
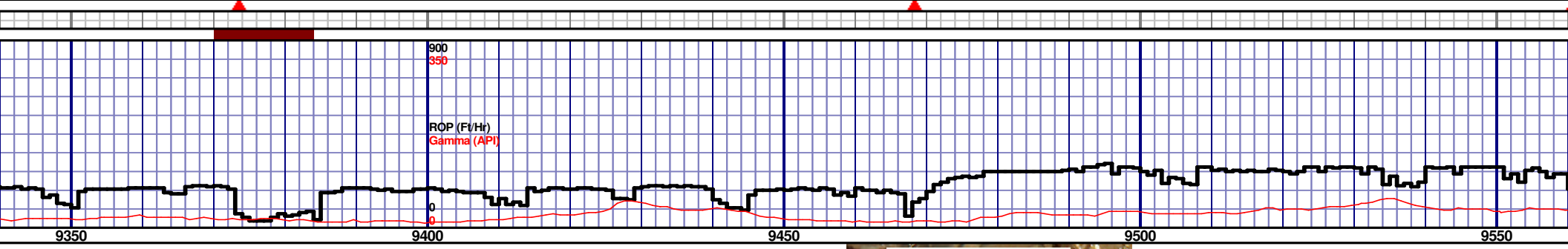
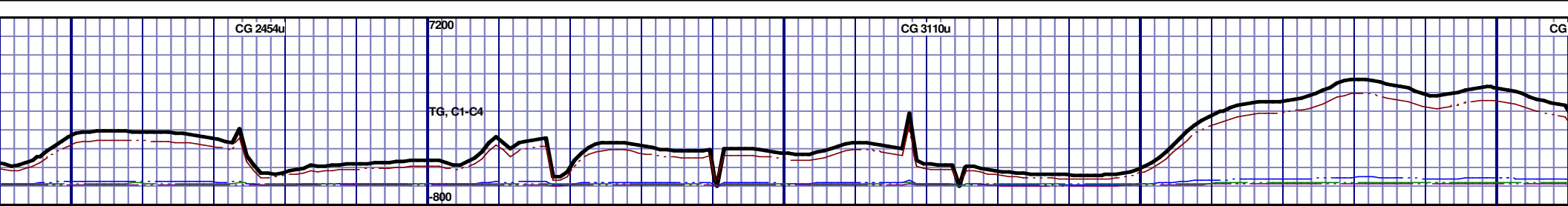
<p>8900'-8950': 90% LS: PRED WH - MOD PAYLSHOR- TRACE DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 10% FREE SH, TT POR, TR NO STN, TRC MIN FLOR</p>	<p>8950'-9000': 95% LS: PRED WH - MOD PAYLSHOR- TRACE DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 5% FREE SH, TT POR, TR NO STN, TRC MIN FLOR</p>	<p>9000'-9050': 90% LS: PRED WH - MOD PAYLSHOR- TRACE DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 10% FREE SH, TT POR, TR NO STN, TRC MIN FLOR</p>	<p>9050'-9100': 80% LS: PRED WH - MOD PAYLSHOR- TRACE DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 20% FREE SH, TT POR, TR NO STN, TRC MIN FLOR</p>	<p>9100'-9150': 90% LS: PRED WH - MOD PAYLSHOR- TRACE DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 10% FREE SH, TT POR, TR NO STN, TRC MIN FLOR</p>
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MD 8933 TVD 7044.44
INC 90.66 AZ 358.87
VS 2430.55

MD 9027 TVD 7044.72
INC 88.99 AZ 359.94
VS 2524.5

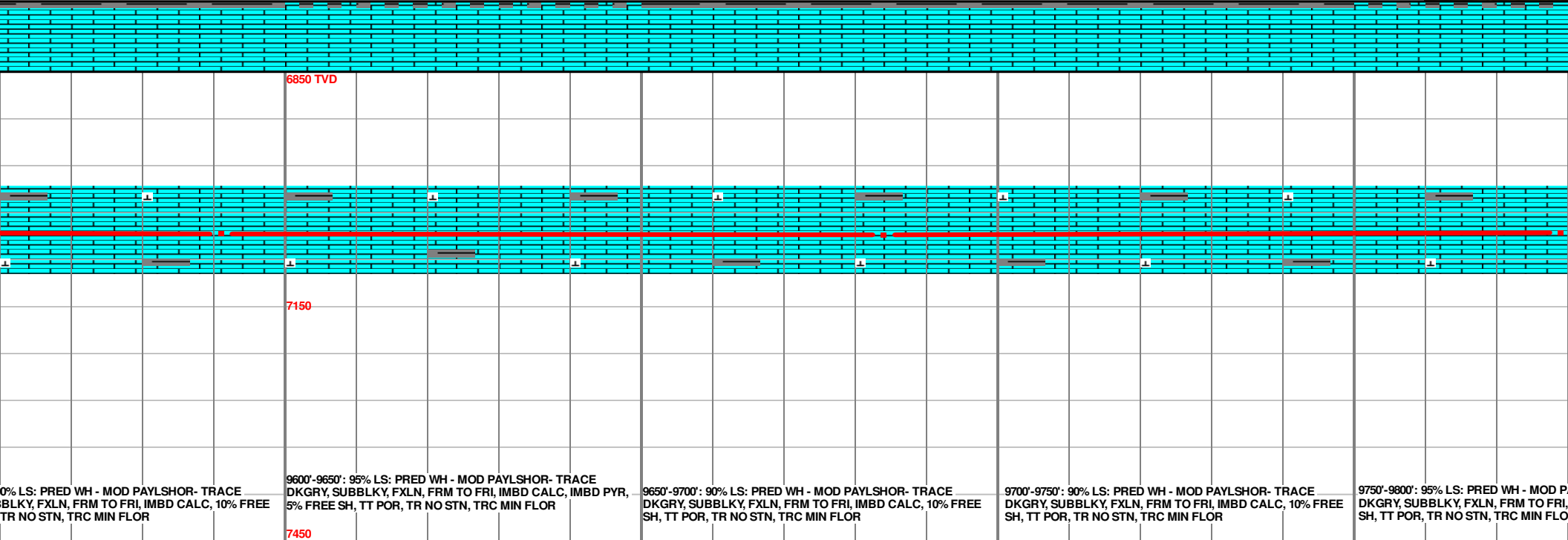
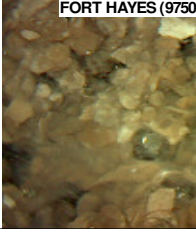
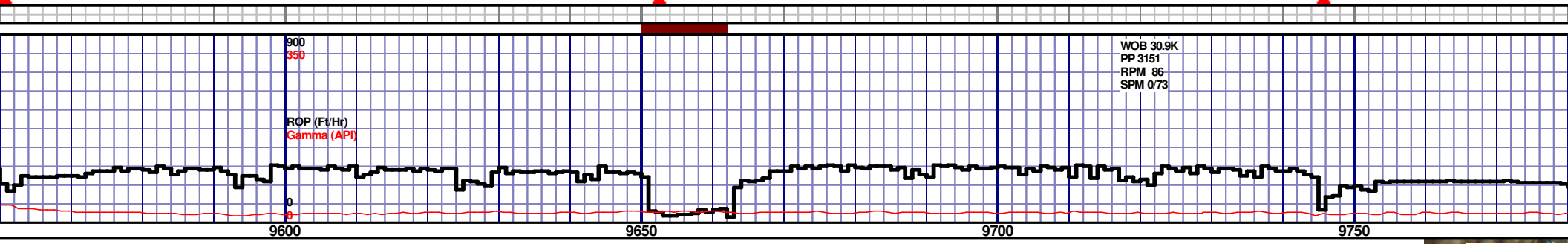
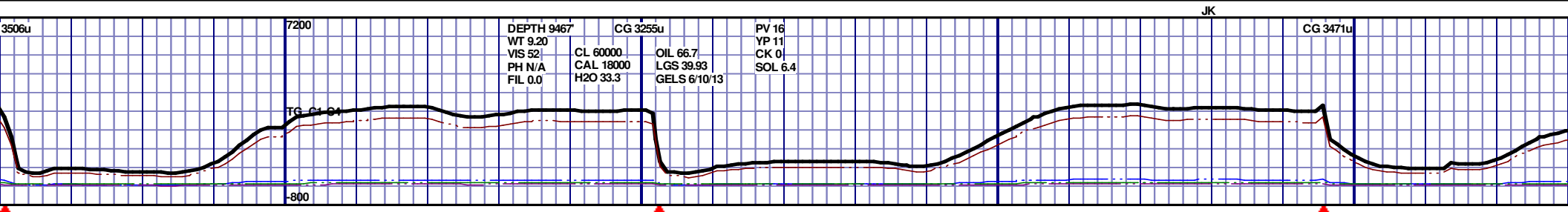


WH - MOD PAYLSHOR- TRACE FRM TO FRI, IMBD CALC, 10% FREE TRC MIN FLOR	9150'-9200': 90% LS: PRED WH - MOD PAYLSHOR- TRACE DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 10% FREE SH, TT POR, TR NO STN, TRC MIN FLOR	9200'-9250': 90% LS: PRED WH - MOD PAYLSHOR- TRACE DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 10% FREE SH, TT POR, TR NO STN, TRC MIN FLOR	9250'-9300': 90% LS: PRED WH - MOD PAYLSHOR- TRACE DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 10% FREE SH, TT POR, TR NO STN, TRC MIN FLOR	9300'-9350': 95% LS: PRED WH - MOD PAYLSHOR- T DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 10% FREE SH, TT POR, TR NO STN, TRC MIN FLOR
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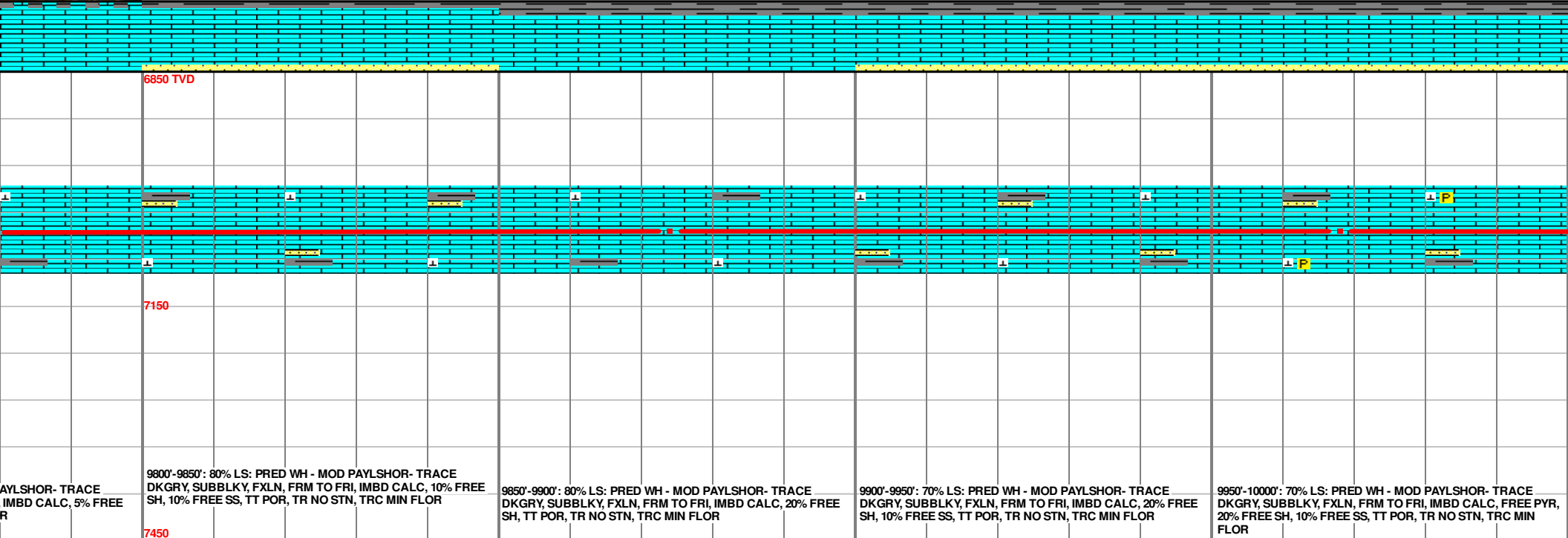
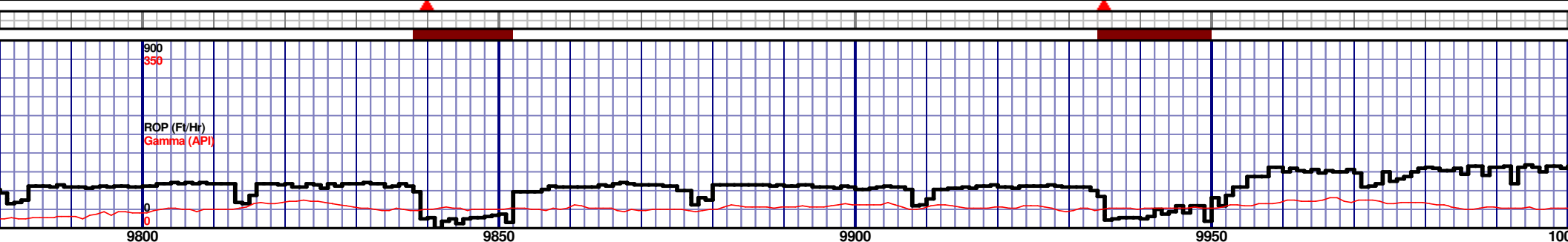
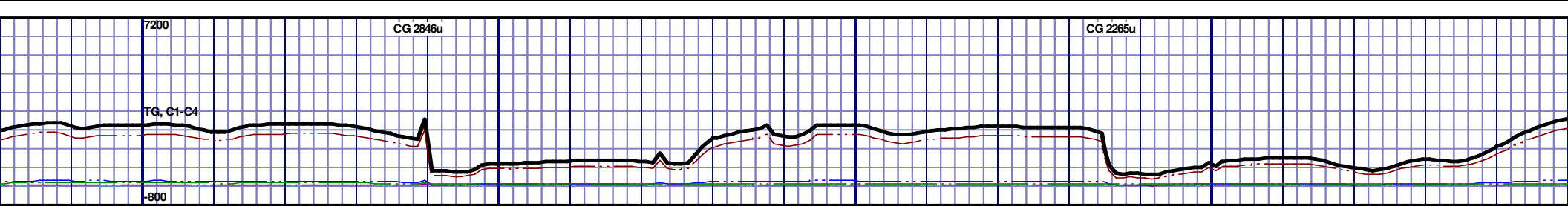
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INC 87.23 AZ 2.65
VS 2901.33

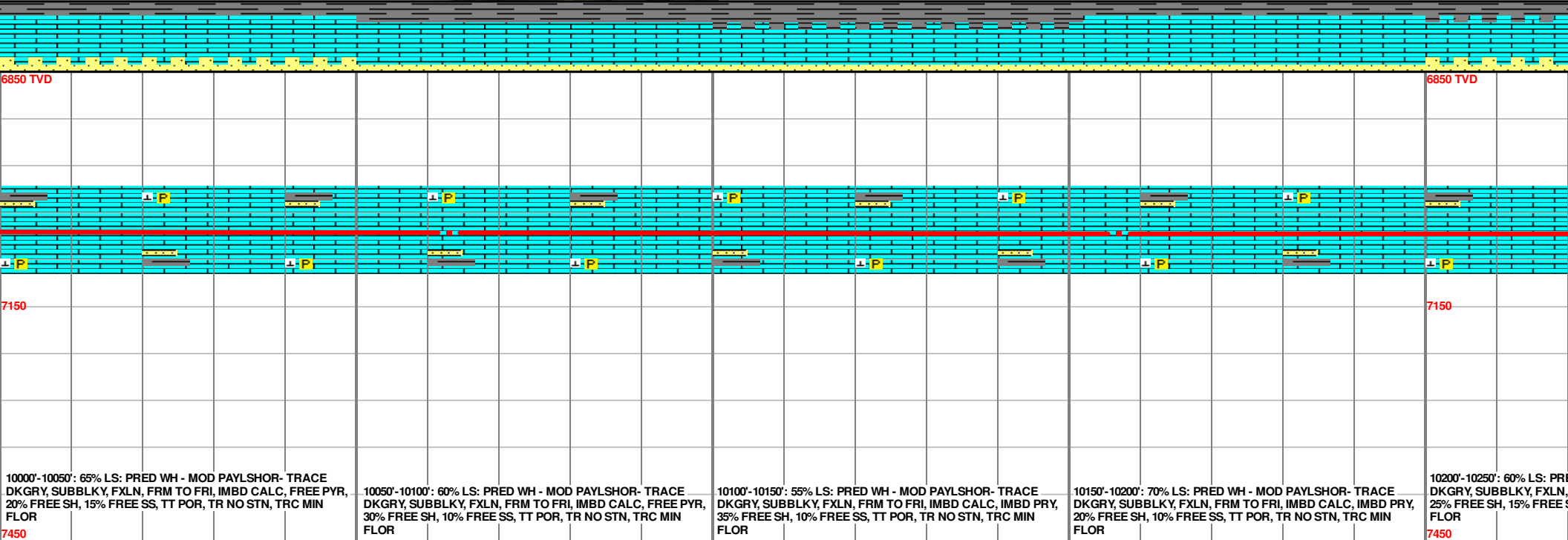
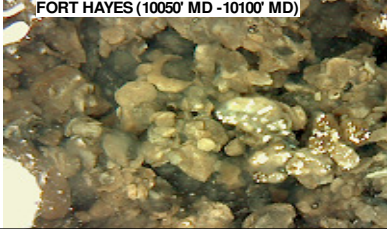
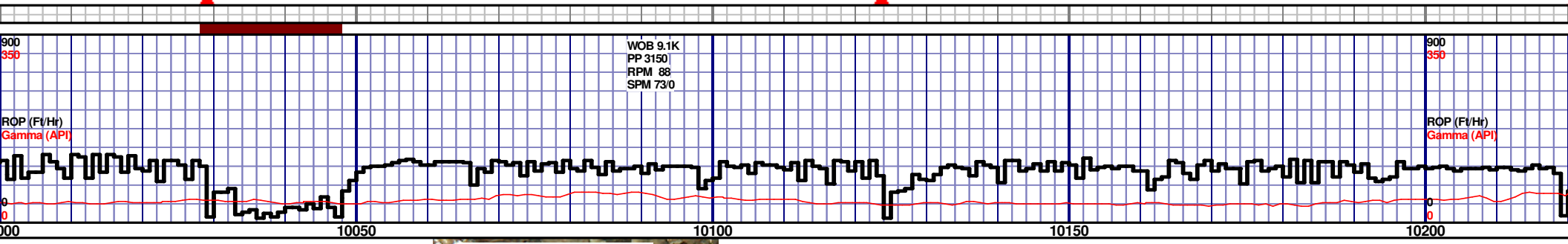
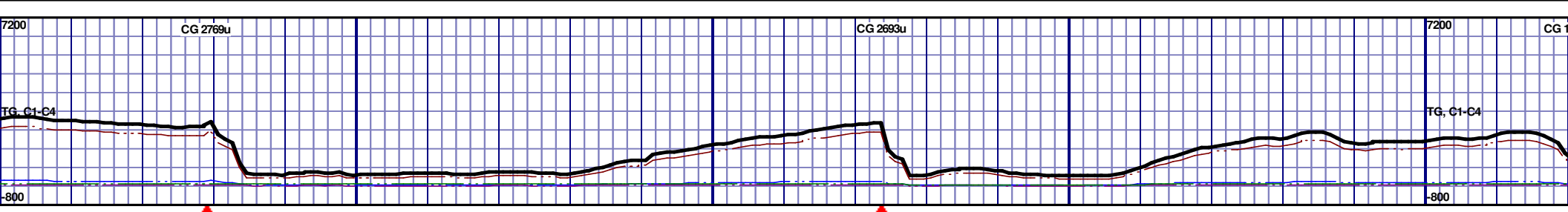
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VS 2994.23



MD 9591 TVD 7057.37
INC 88.64 AZ 2.39
VS 3088.17

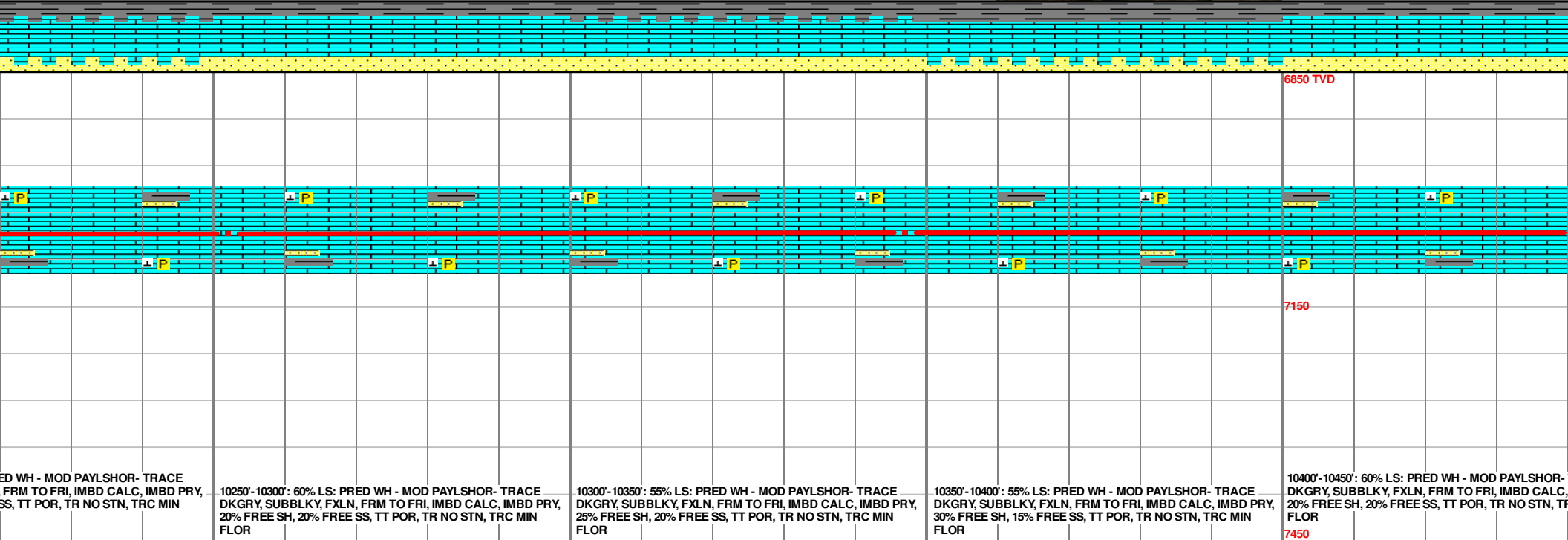
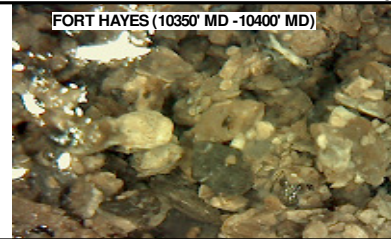
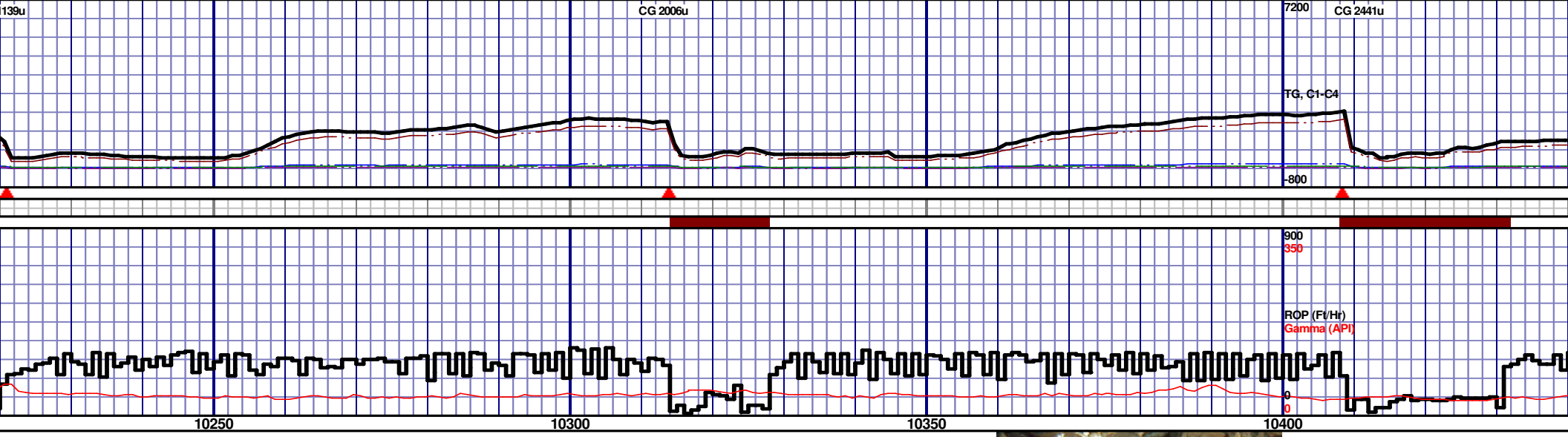
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INC 90.57 AZ 0.52
VS 3181.16





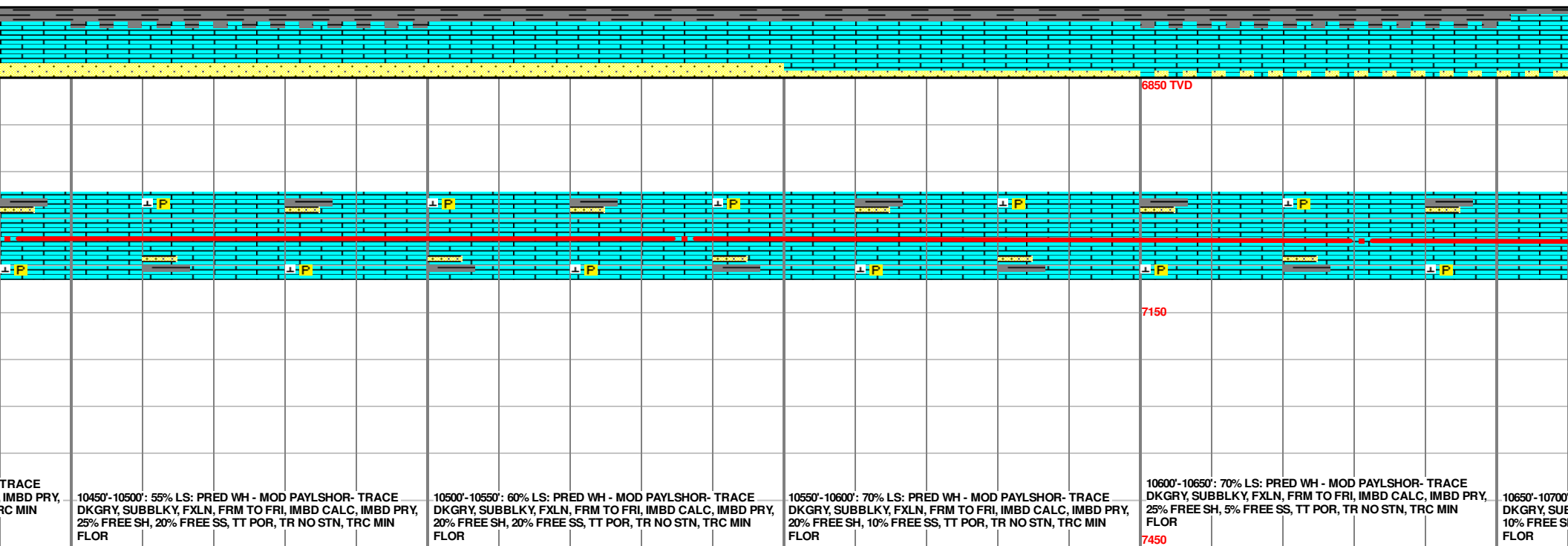
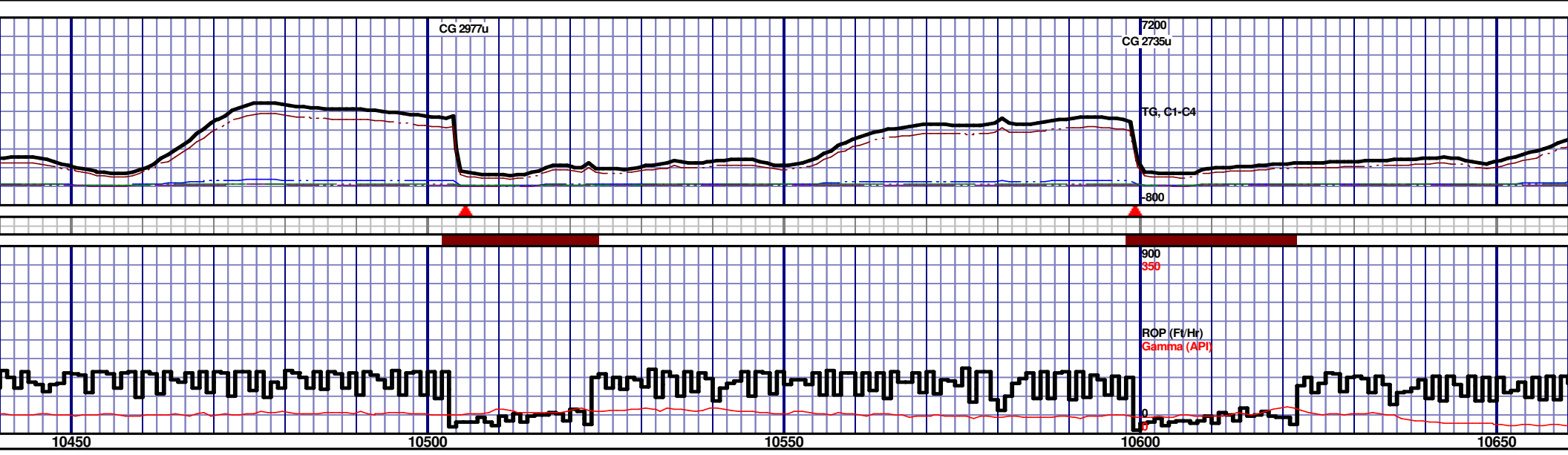
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INC 88.99 AZ 358.16
VS 3559.89

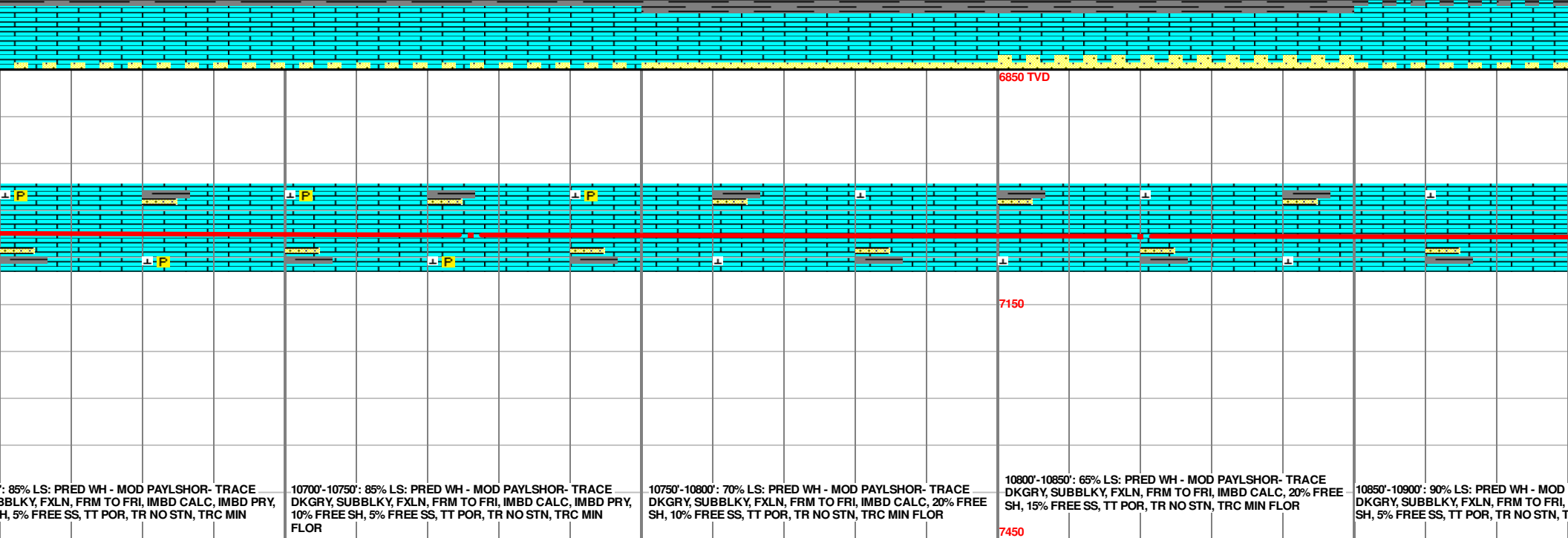
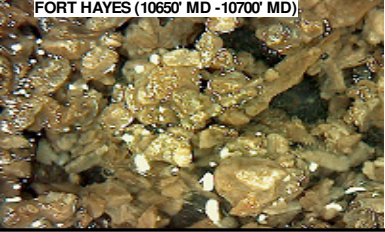
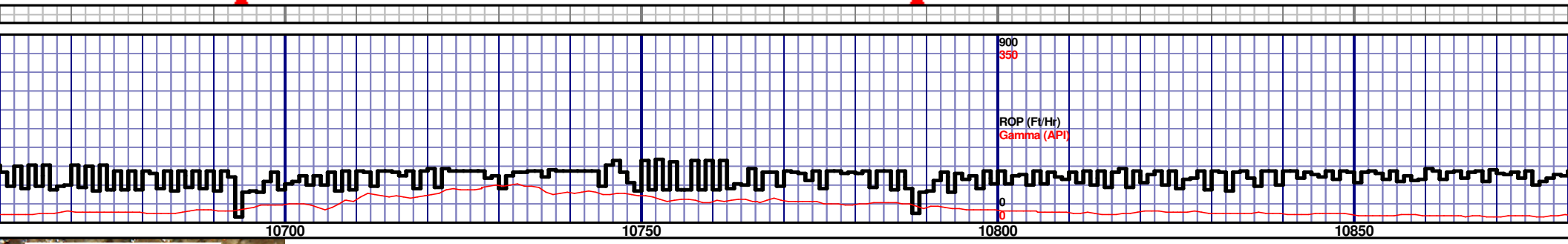
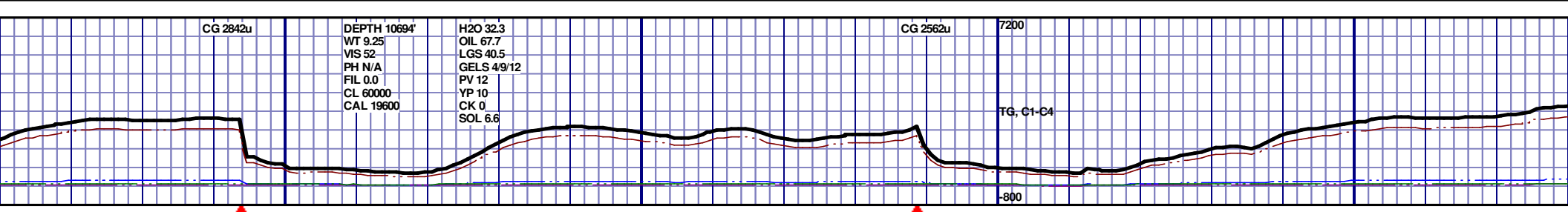
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INC 89.25 AZ 356.76
VS 3653.68



MD 10252 TVD 7057.35
INC 90.31 AZ 356.64
VS 3748.38

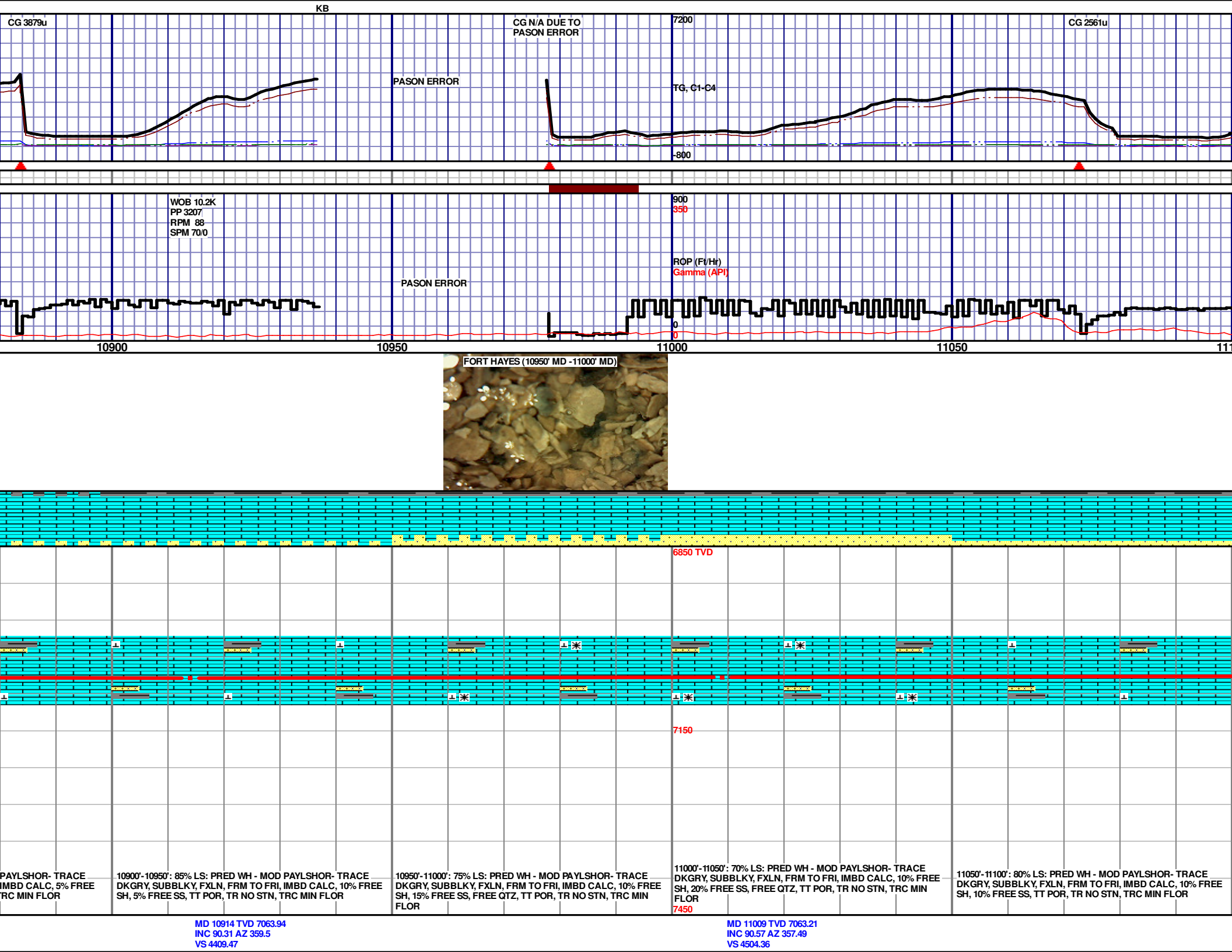
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INC 91.28 AZ 356.71
VS 3843.07

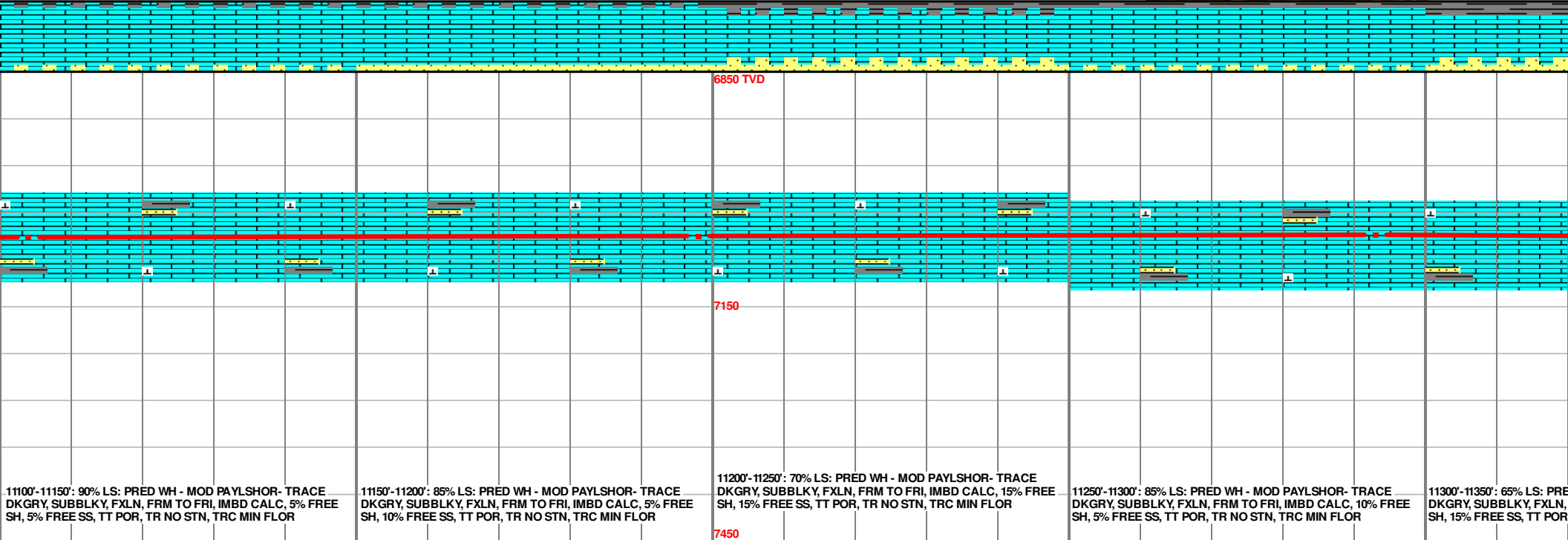
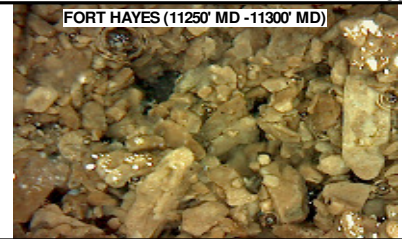
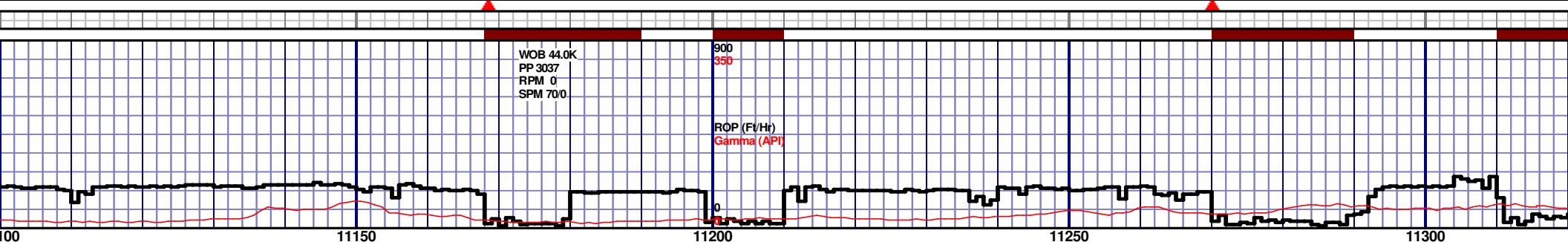
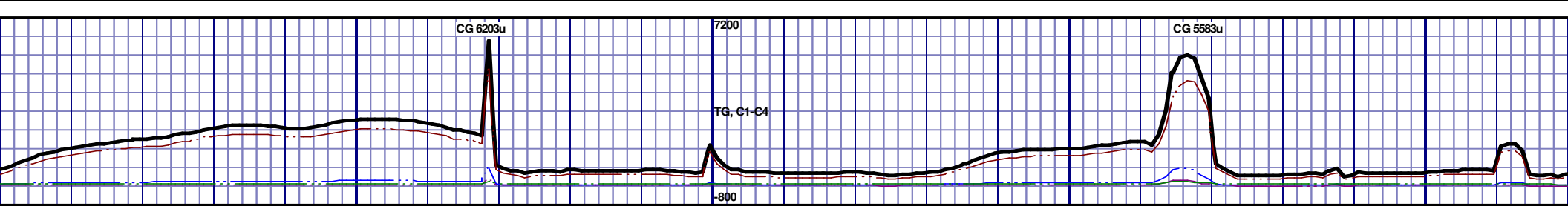


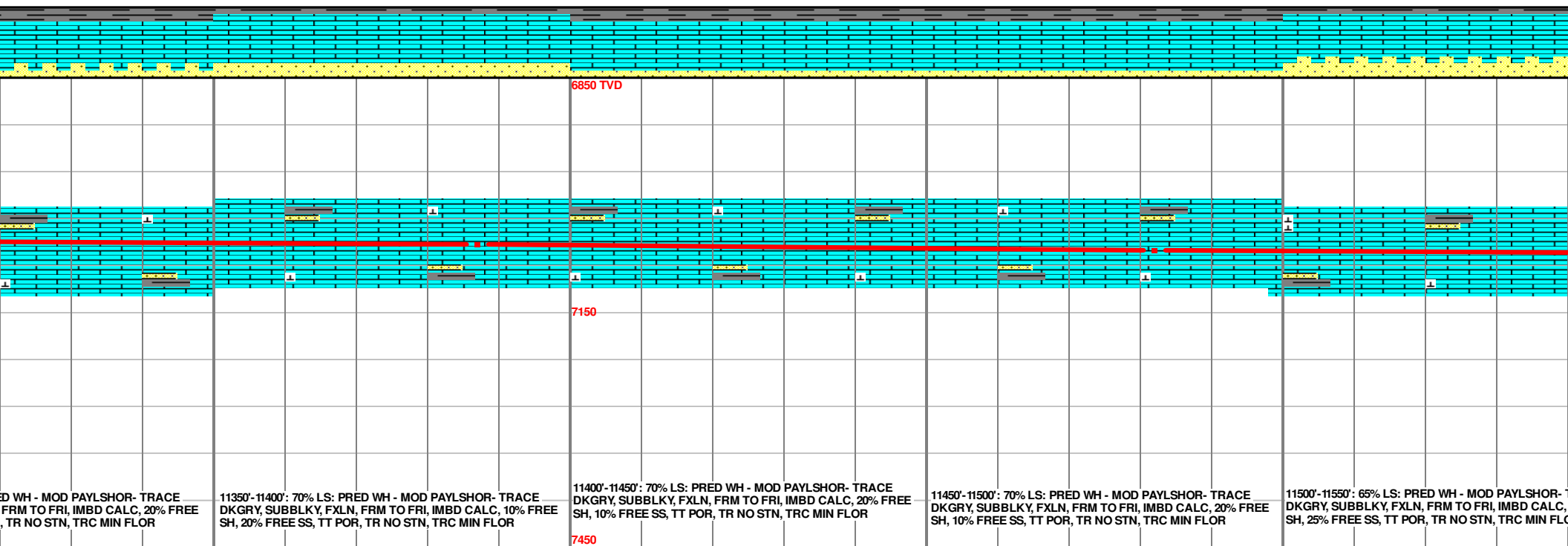
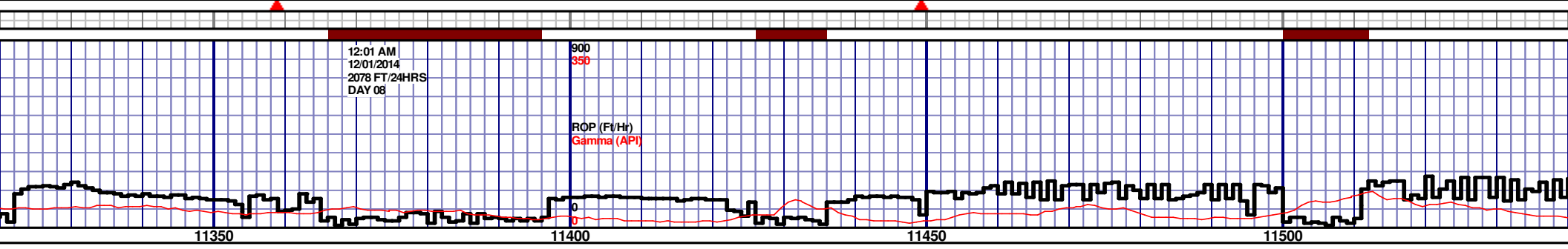
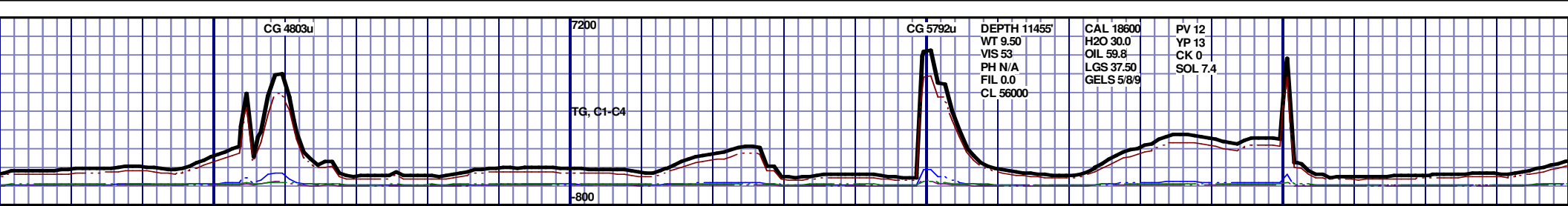


MD 10726 TVD 7061.29
INC 88.29 AZ 359.72
VS 4221.57

MD 10820 TVD 7063.44
INC 89.08 AZ 359.92
VS 4315.51

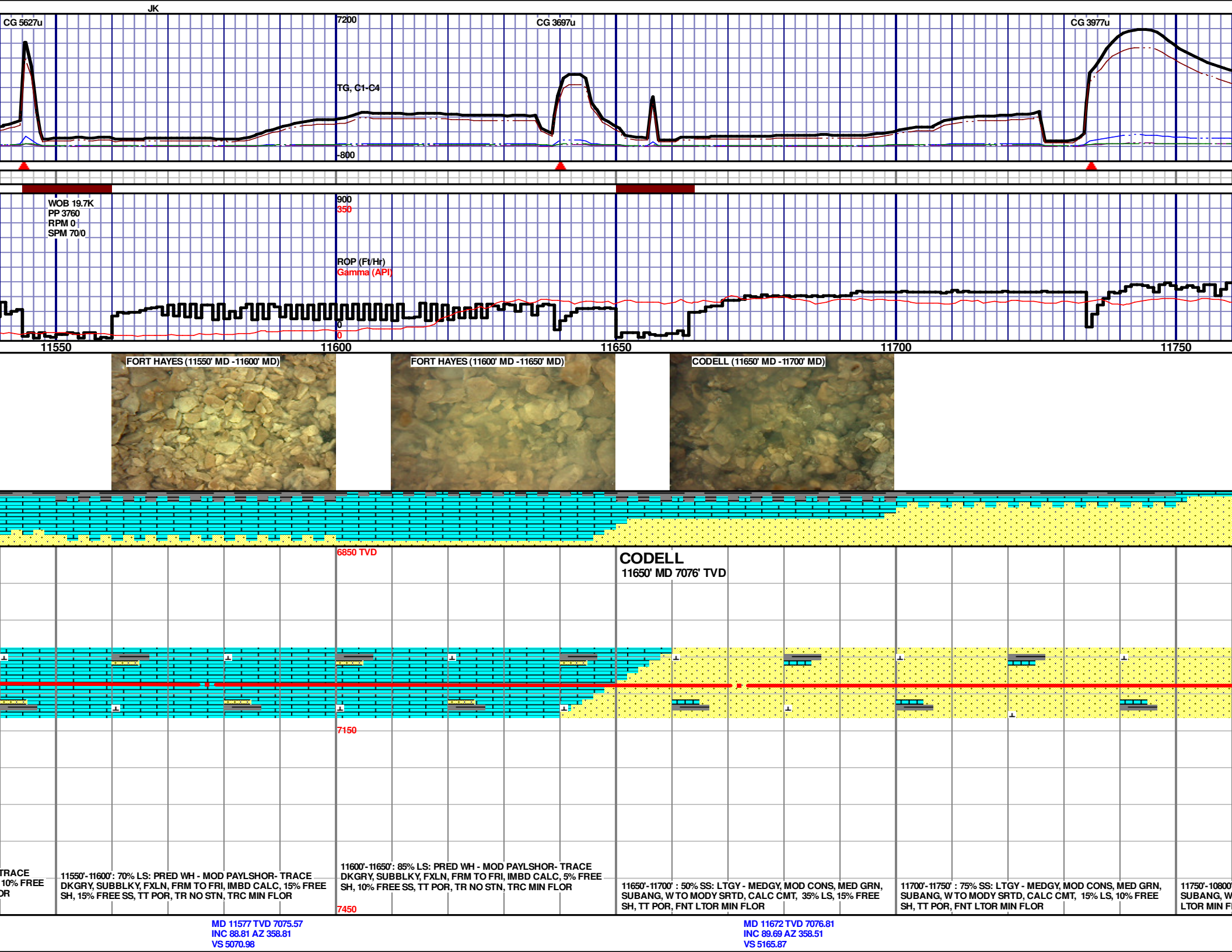


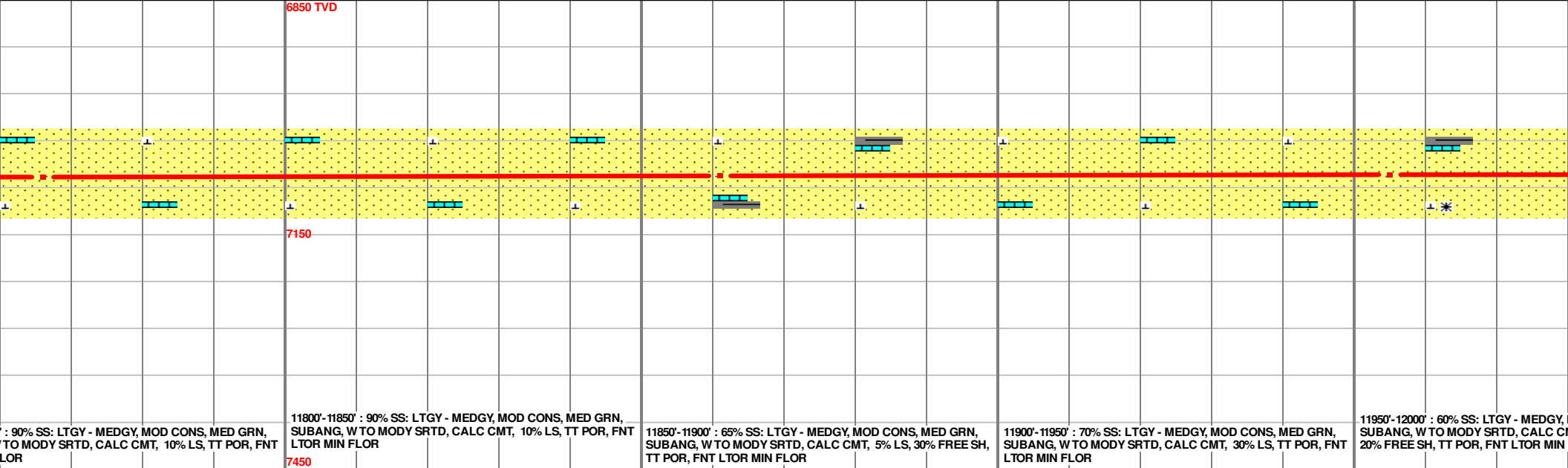
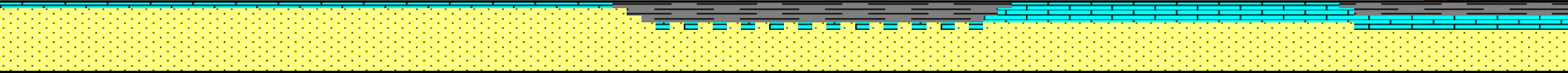
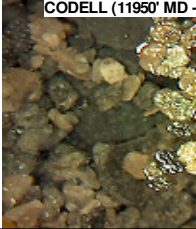
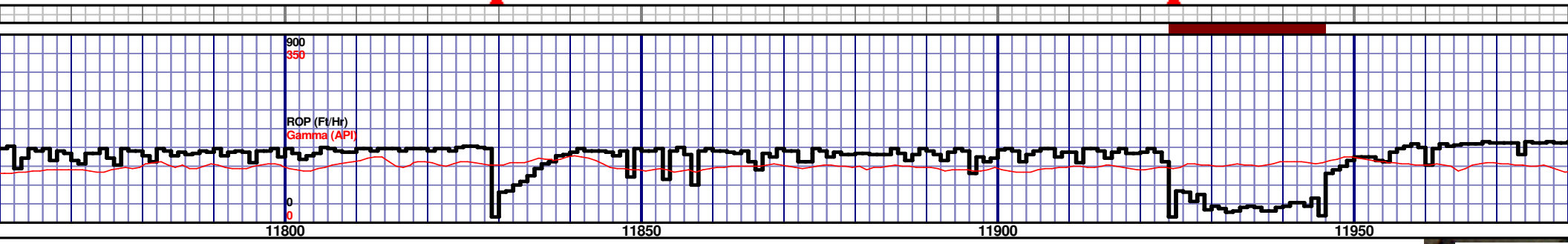
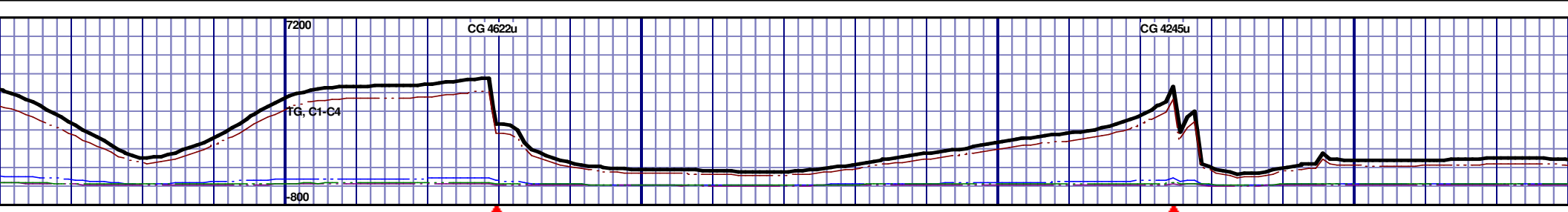




MD 11387 TVD 7062.32
INC 85.65 AZ 359.53
VS 4881.61

MD 11482 TVD 7070.25
INC 84.77 AZ 359.02
VS 4976.22

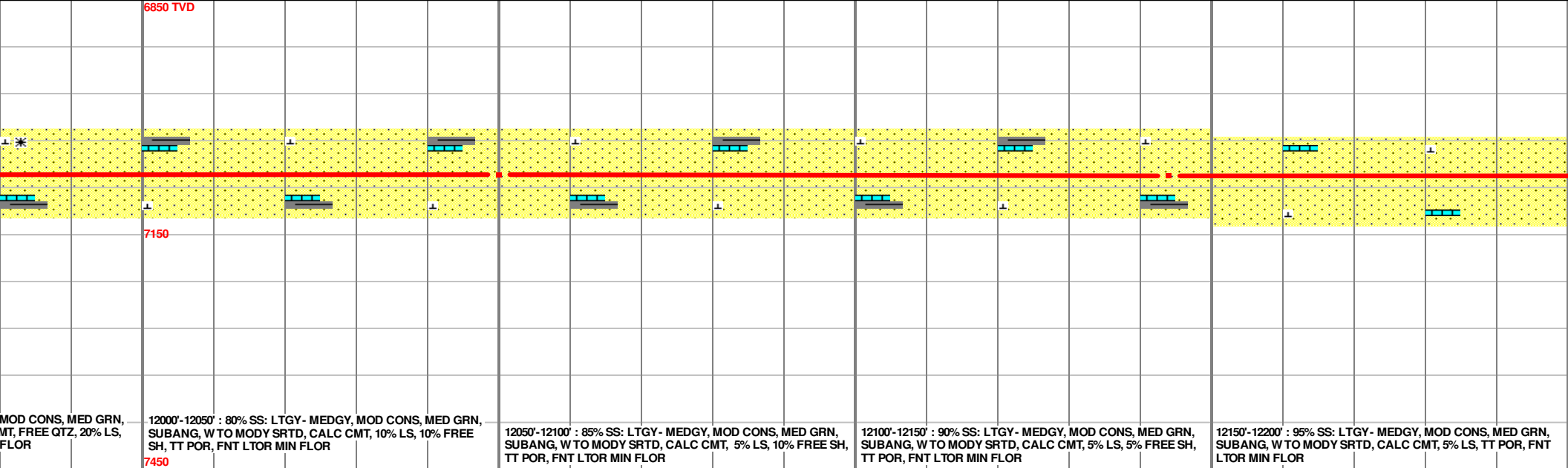
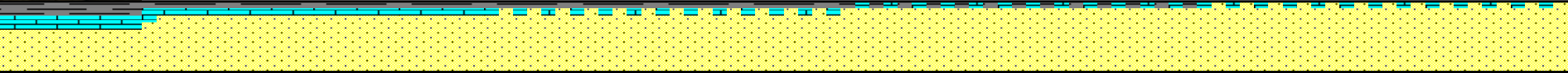
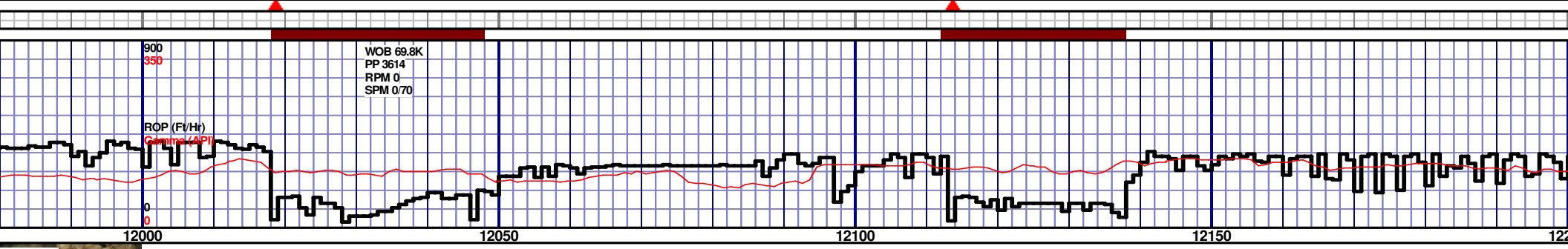
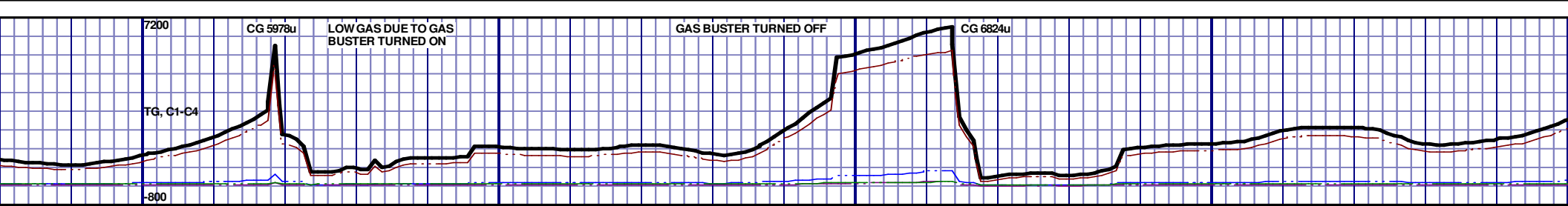




MD 11766 TVD 7076.74
INC 90.4 AZ 358.23
VS 5259.75

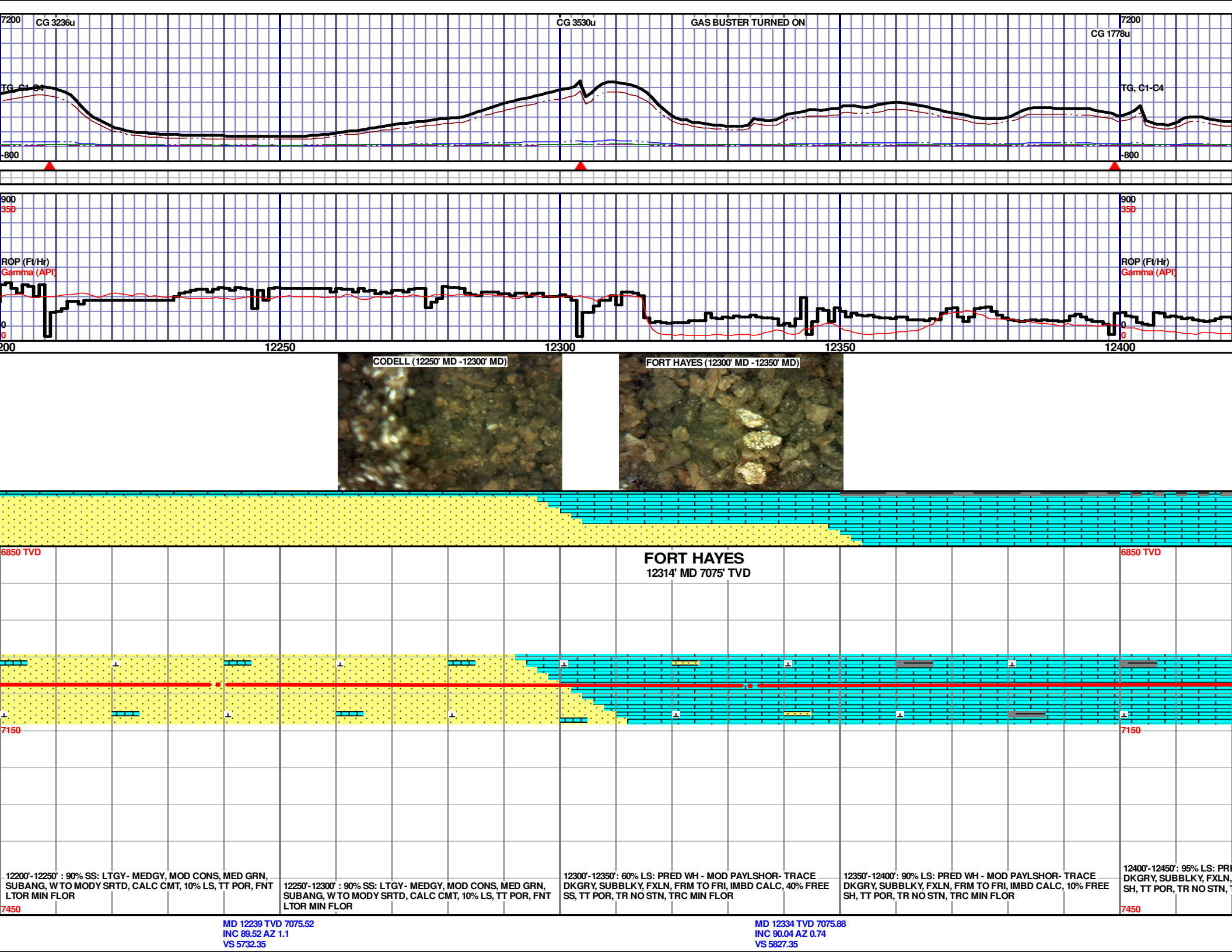
MD 11861 TVD 7075.13
INC 91.54 AZ 358.3
VS 5354.61

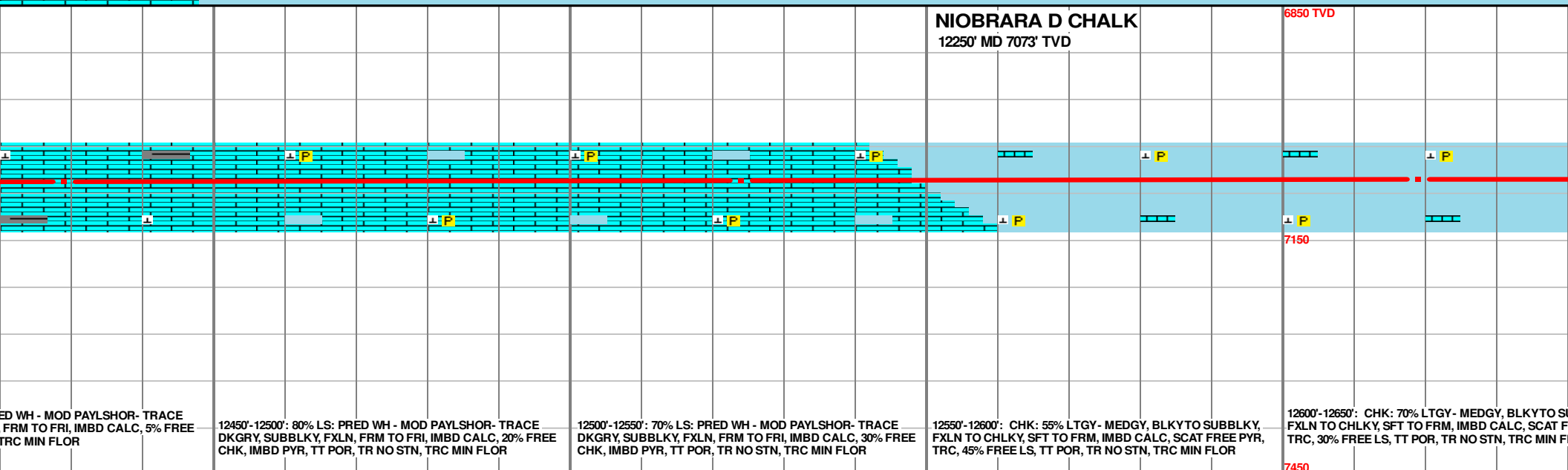
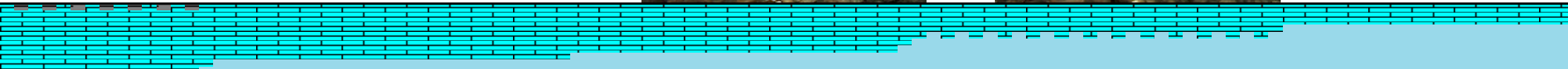
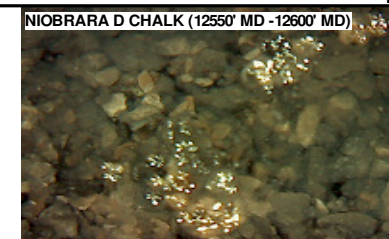
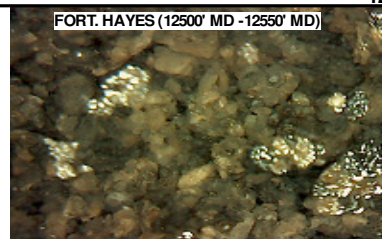
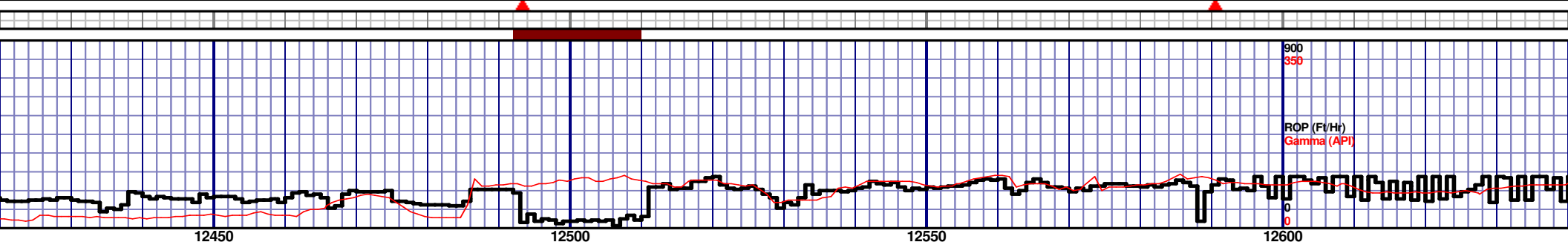
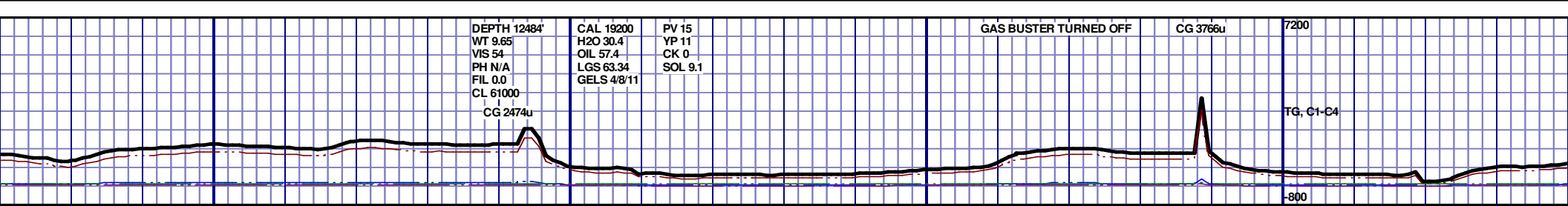
MD 11955 TVD 7073.47
INC 90.48 AZ 358.6
VS 5448.48

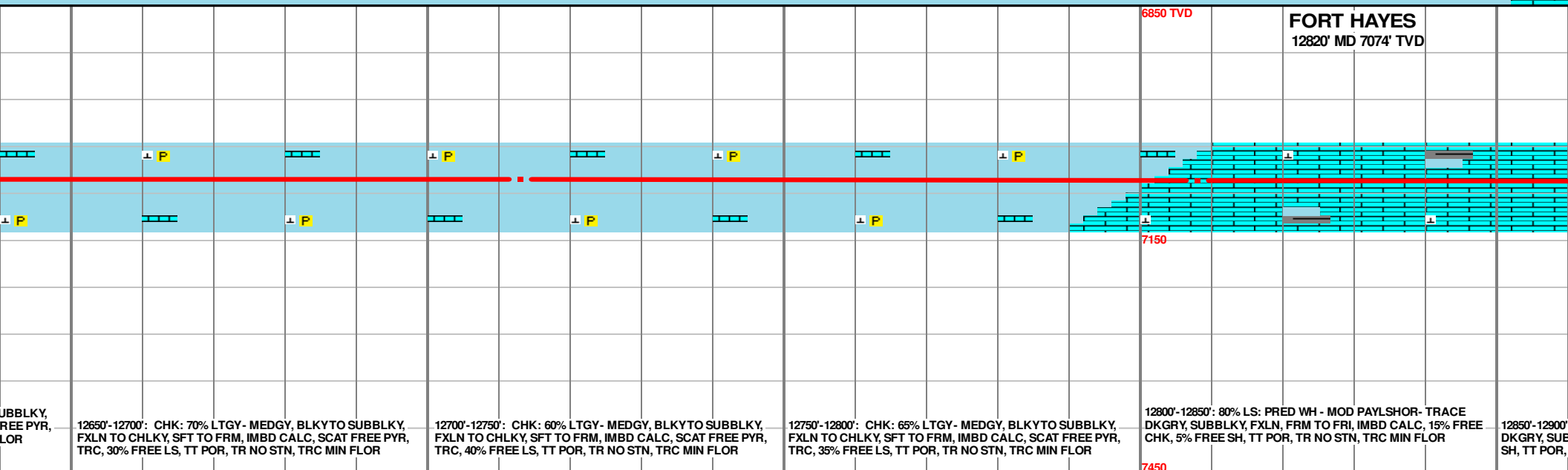
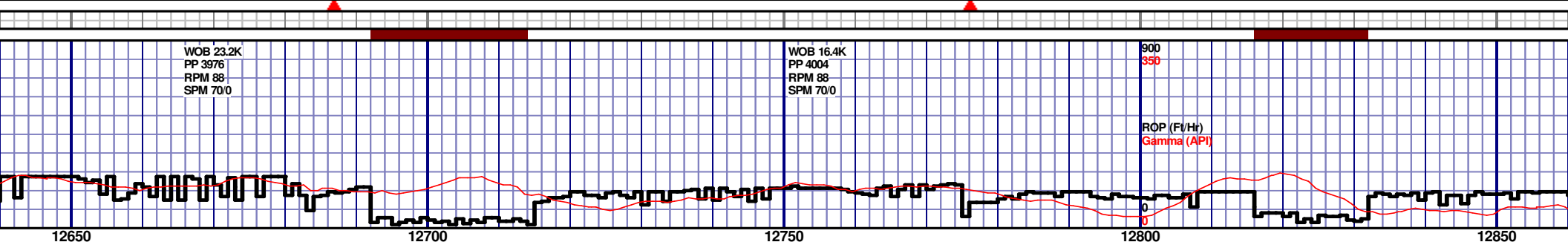
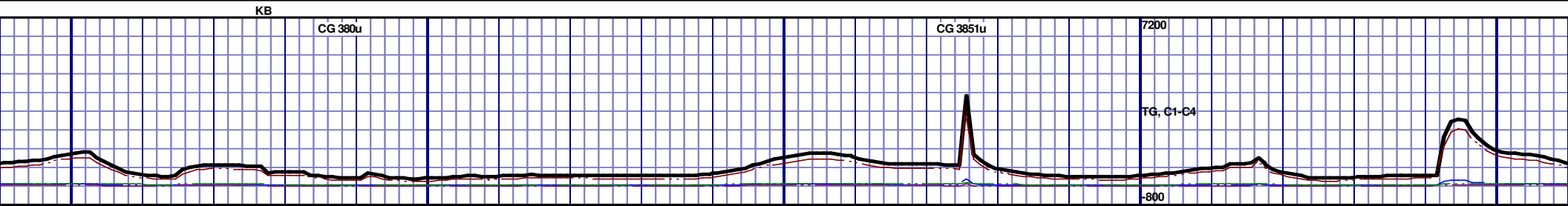


MD 12050 TVD 7073.41
INC 89.6 AZ 358.81
VS 5543.39

MD 12144 TVD 7074.42
INC 89.16 AZ 1.13
VS 5637.35

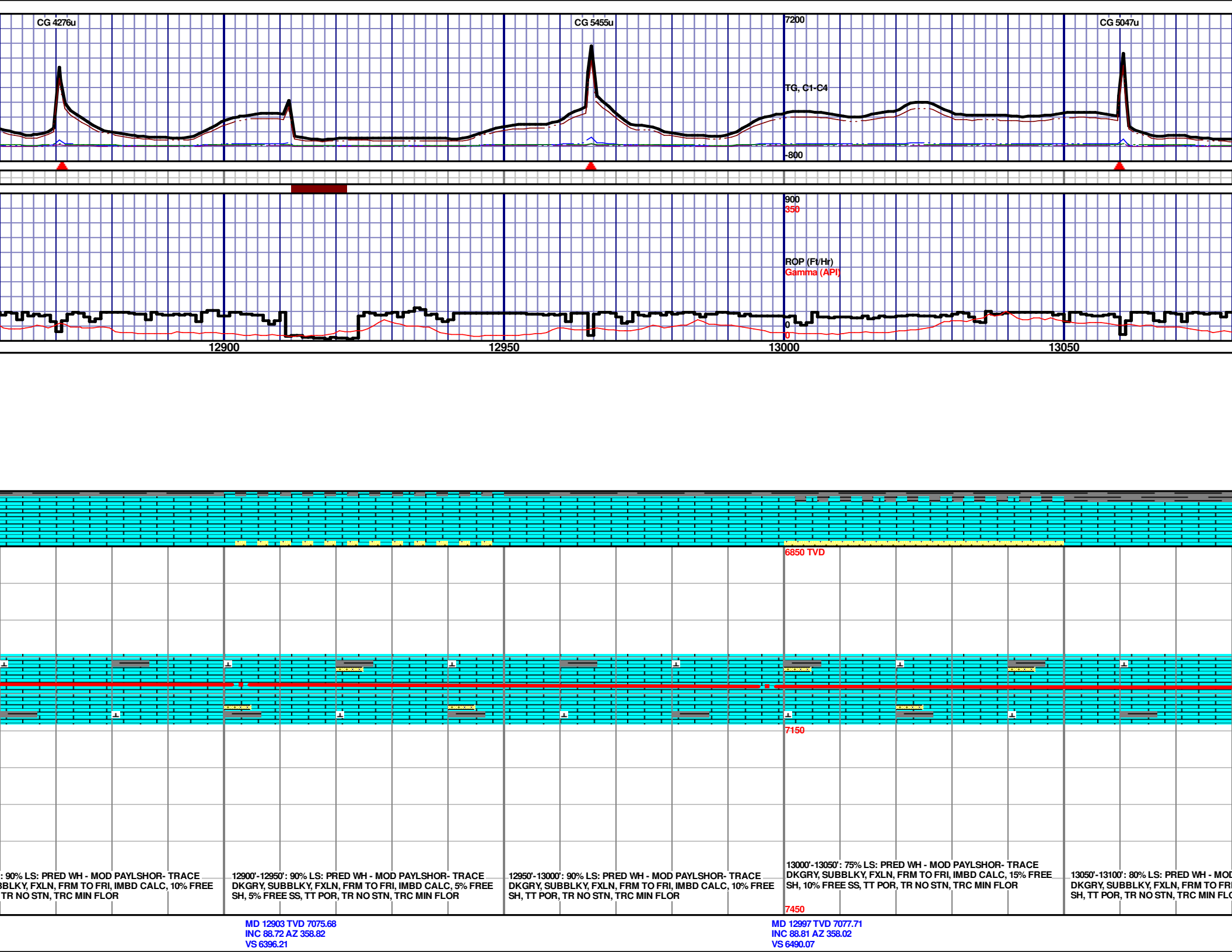






MD 12713 TVD 7072.1
INC 89.16 AZ 0.35
VS 6206.29

MD 12808 TVD 7073.71
INC 88.9 AZ 0.34
VS 6301.27



CG 4276u

CG 5455u

7200

CG 5047u

TG, C1-C4

-800

900

350

ROP (Ft/Hr)

Gamma (API)

12900

12950

13000

13050

6850 TVD

7150

7450

: 90% LS: PRED WH - MOD PAYLSHOR- TRACE
DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 10% FREE
TR NO STN, TRC MIN FLOR

12900'-12950': 90% LS: PRED WH - MOD PAYLSHOR- TRACE
DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 5% FREE
SH, 5% FREE SS, TT POR, TR NO STN, TRC MIN FLOR

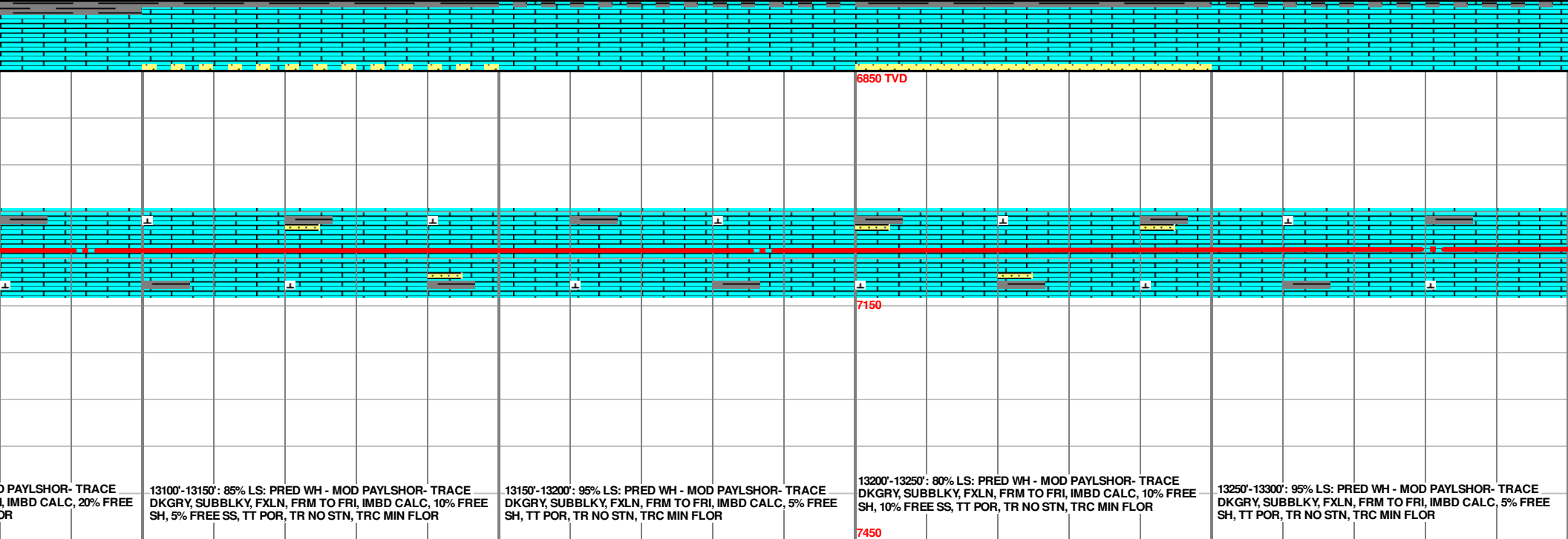
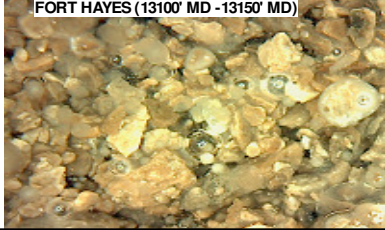
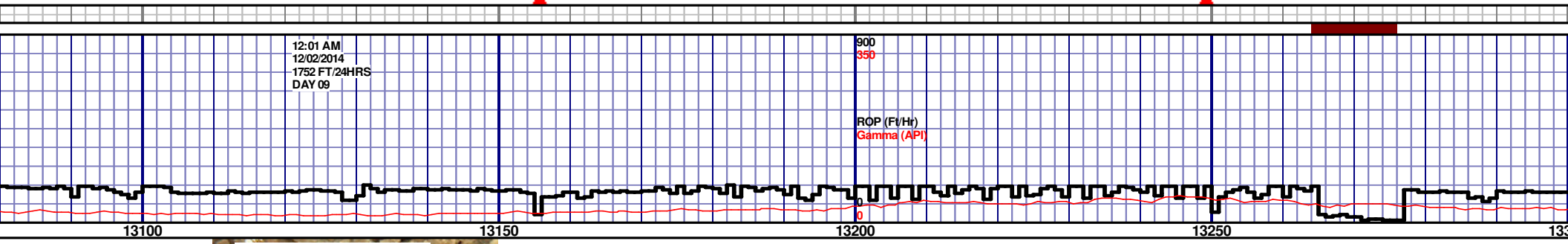
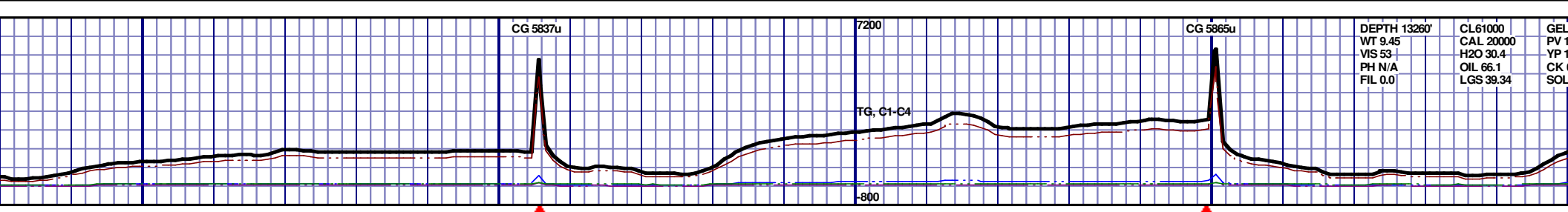
12950'-13000': 90% LS: PRED WH - MOD PAYLSHOR- TRACE
DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 10% FREE
SH, TT POR, TR NO STN, TRC MIN FLOR

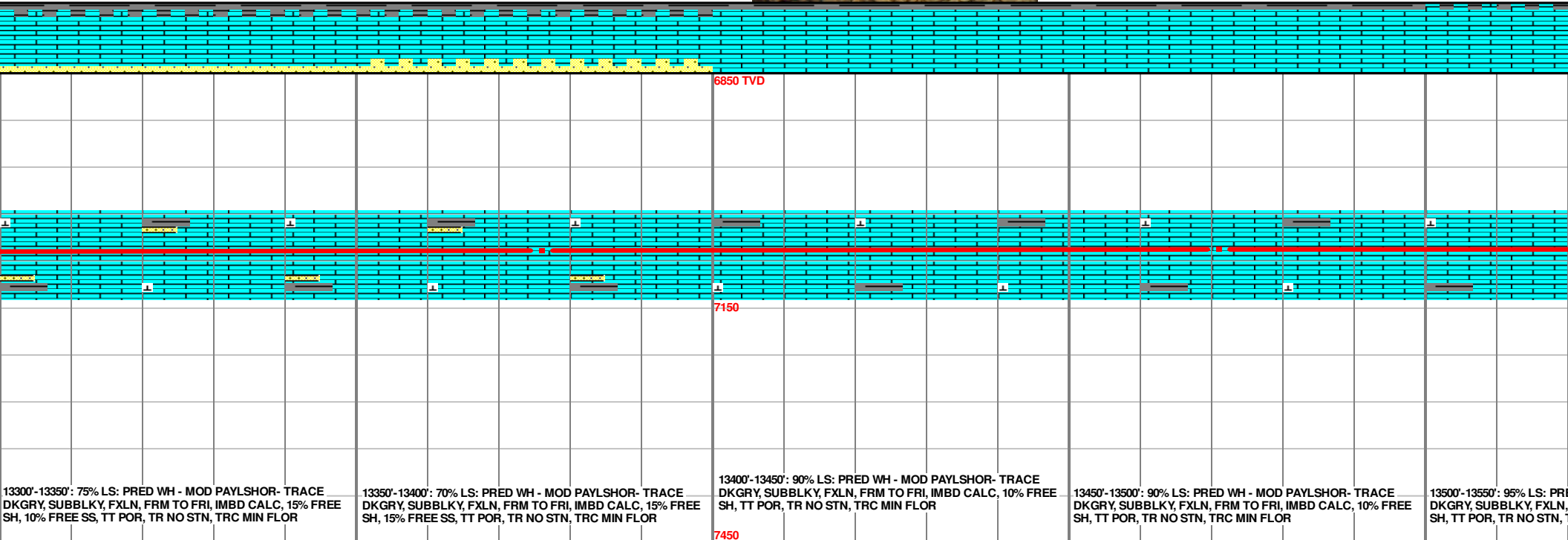
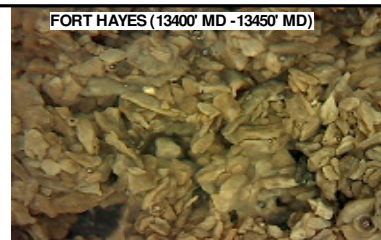
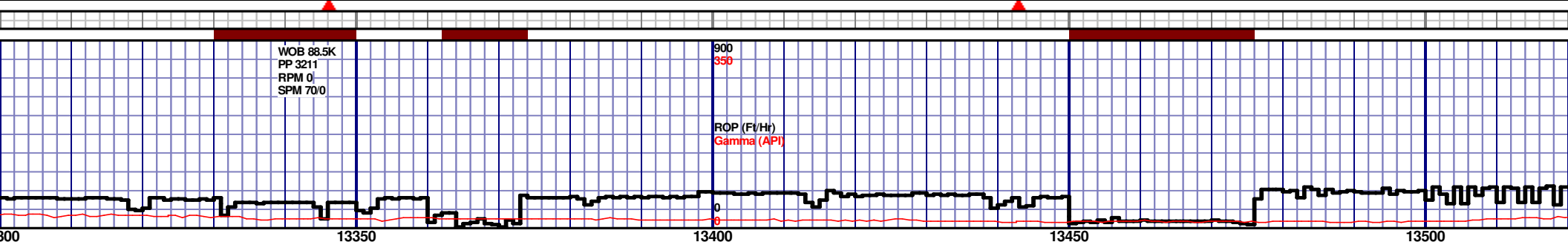
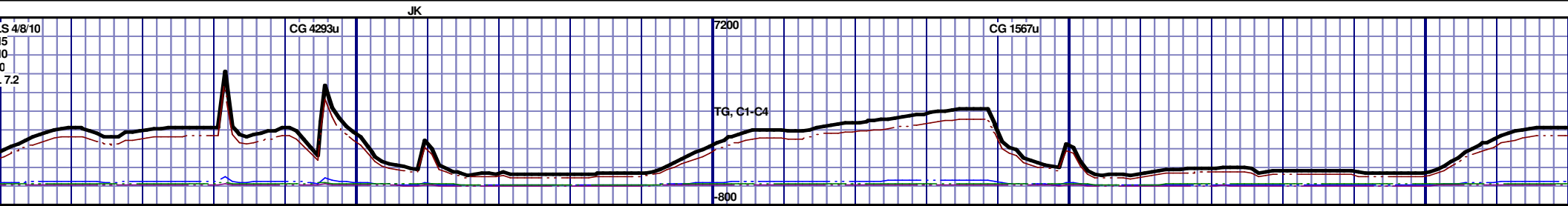
13000'-13050': 75% LS: PRED WH - MOD PAYLSHOR- TRACE
DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 15% FREE
SH, 10% FREE SS, TT POR, TR NO STN, TRC MIN FLOR

13050'-13100': 80% LS: PRED WH - MOD PAYLSHOR- TRACE
DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 15% FREE
SH, TT POR, TR NO STN, TRC MIN FLOR

MD 12903 TVD 7075.68
INC 88.72 AZ 358.82
VS 6396.21

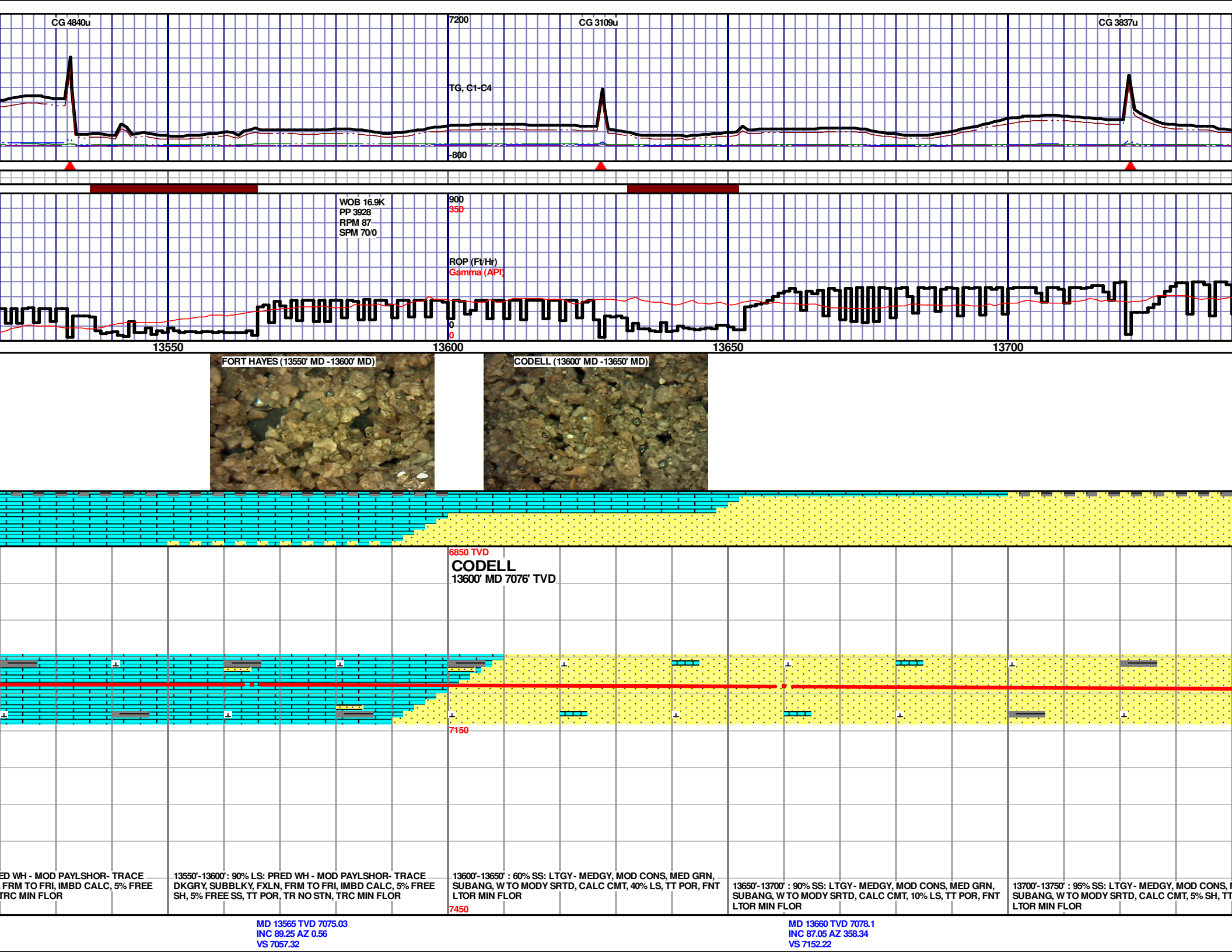
MD 12997 TVD 7077.71
INC 88.81 AZ 358.02
VS 6490.07





MD 13376 TVD 7076.49
INC 91.19 AZ 358.45
VS 6868.42

MD 13471 TVD 7074.96
INC 90.66 AZ 359.75
VS 6963.34



CG 4840u

7200

CG 3109u

CG 3837u

TG, C1-C4

-800

WOB 16.9K
PP 3928
RPM 87
SPM 700

900

350

ROP (F/Hr)
Gamma (API)

0

13550

13600

13650

13700

FORT HAYES (13550' MD - 13600' MD)

CODELL (13600' MD - 13650' MD)

6850 TVD

CODELL
13600' MD 7076' TVD

7150

ED WH - MOD PAYLSHOR- TRACE
FRM TO FRI, IMBD CALC, 5% FREE
TRC MIN FLOR

13550'-13600': 90% LS: PRED WH - MOD PAYLSHOR- TRACE
DKGRY, SUBBLKY, FXLN, FRM TO FRI, IMBD CALC, 5% FREE
SH, 5% FREE SS, TT POR, TR NO STN, TRC MIN FLOR

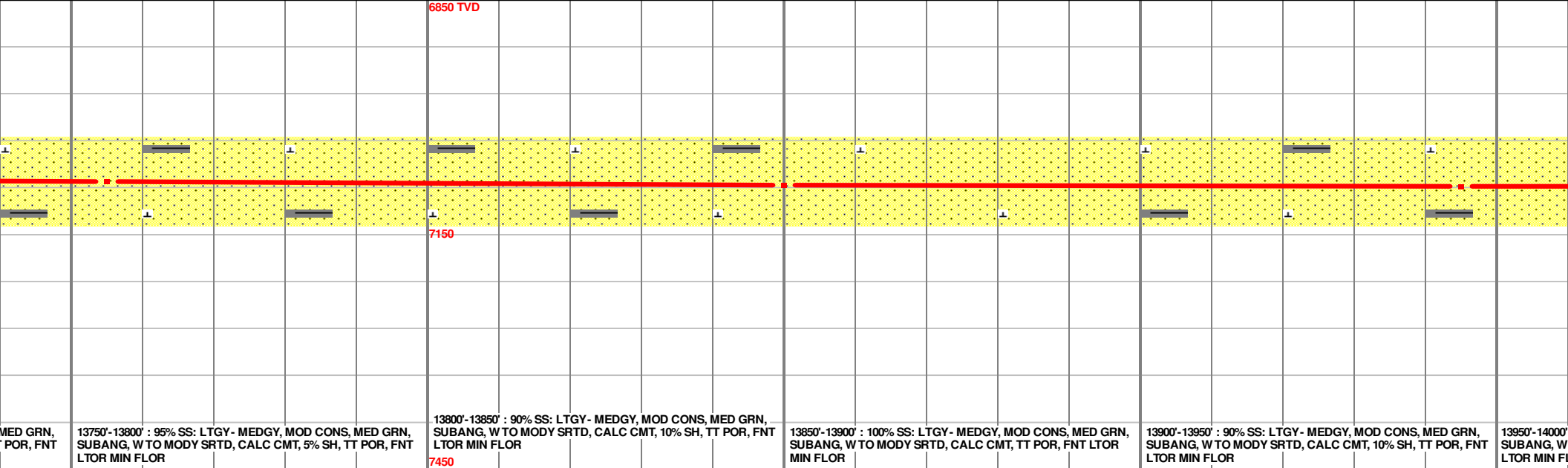
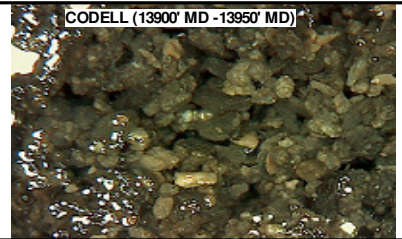
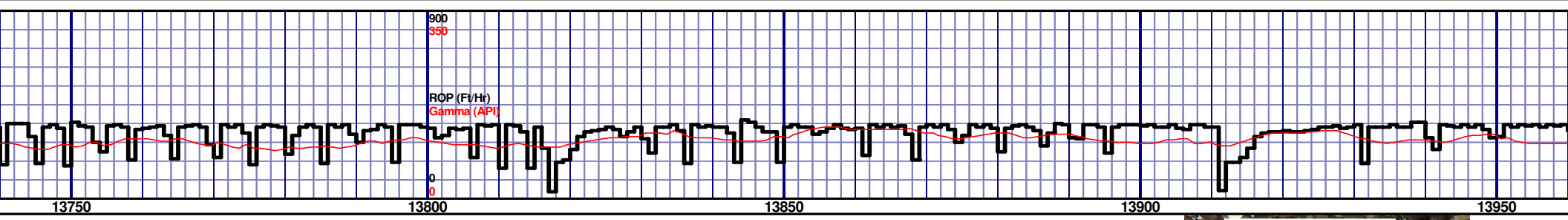
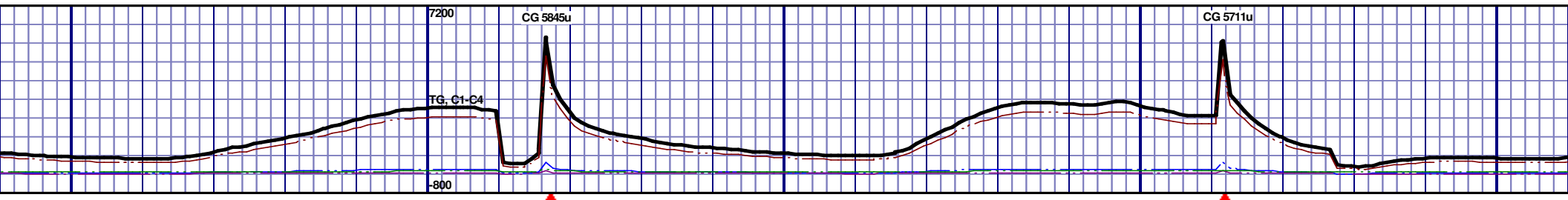
13600'-13650': 60% SS: LTGY - MEDGY, MOD CONS, MED GRN,
SUBANG, W TO MODY SRTD, CALC CMT, 40% LS, TT POR, FNT
LTOR MIN FLOR

13650'-13700': 90% SS: LTGY - MEDGY, MOD CONS, MED GRN,
SUBANG, W TO MODY SRTD, CALC CMT, 10% LS, TT POR, FNT
LTOR MIN FLOR

13700'-13750': 95% SS: LTGY - MEDGY, MOD CONS, SUBANG, W TO MODY SRTD, CALC CMT, 5% SH, TT
LTOR MIN FLOR

MD 13565 TVD 7075.03
INC 89.25 AZ 0.56
VS 7057.32

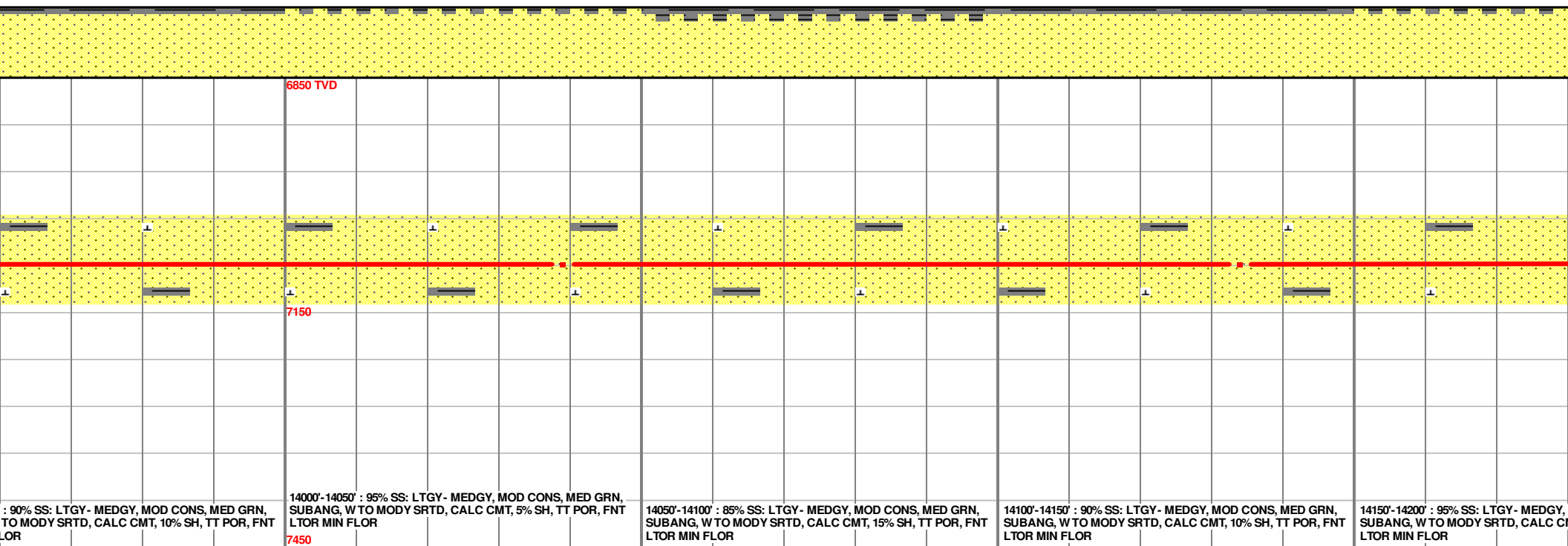
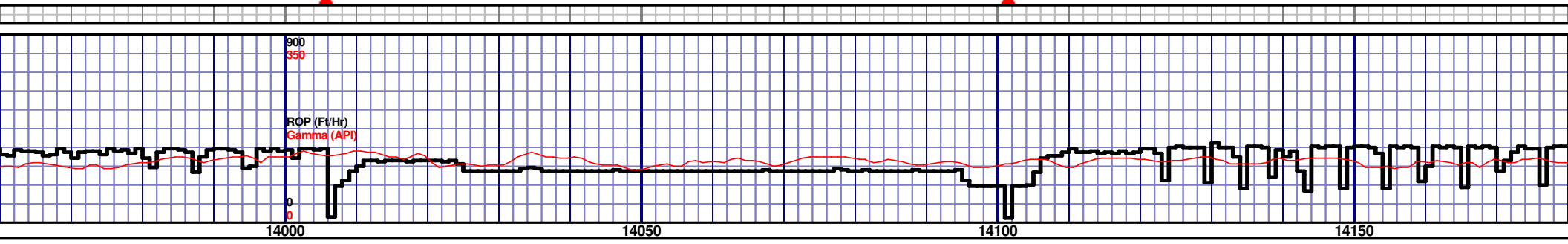
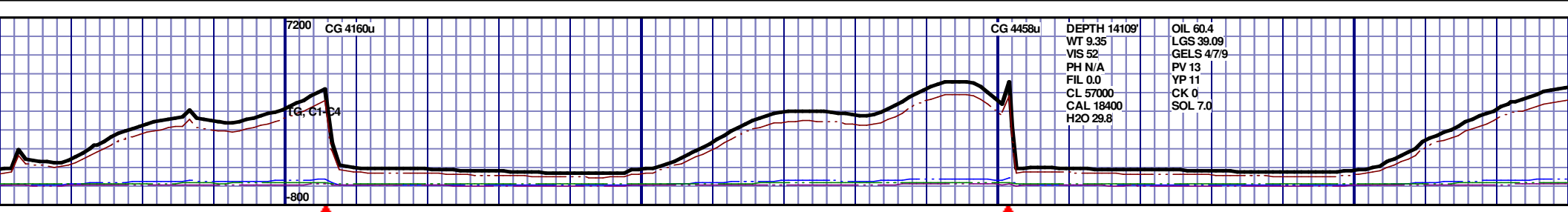
MD 13660 TVD 7078.1
INC 87.05 AZ 358.34
VS 7152.22

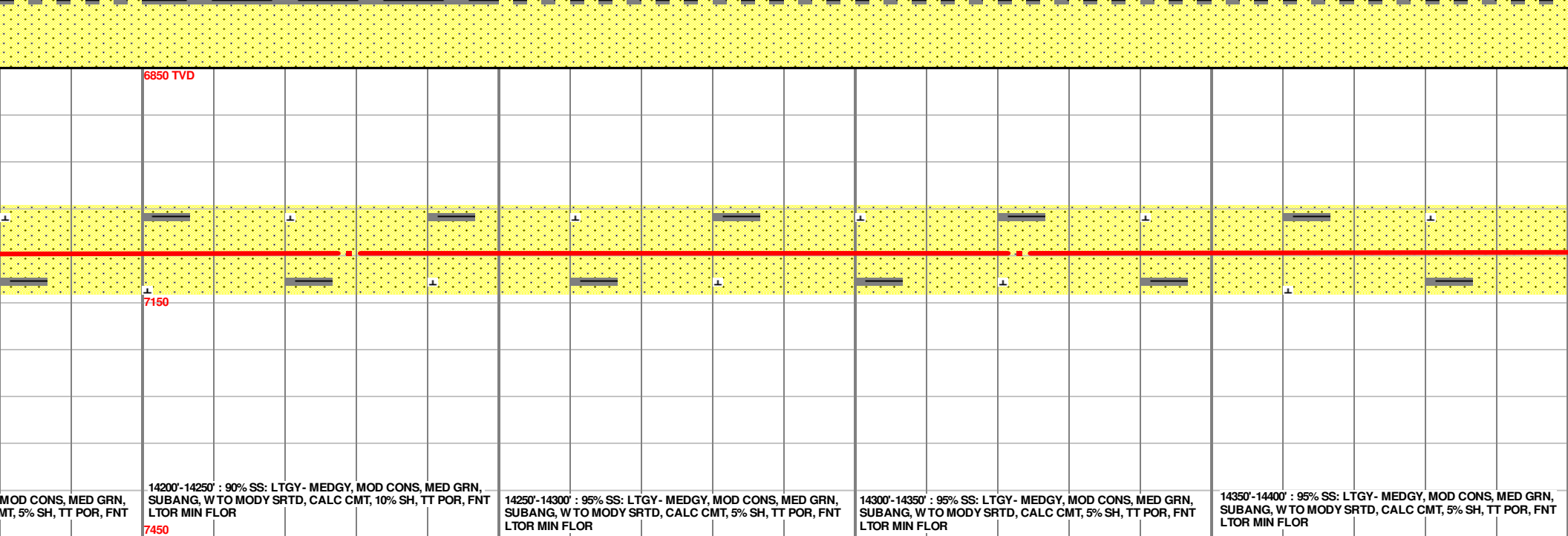
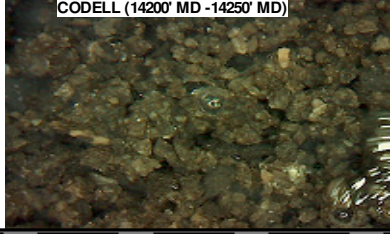
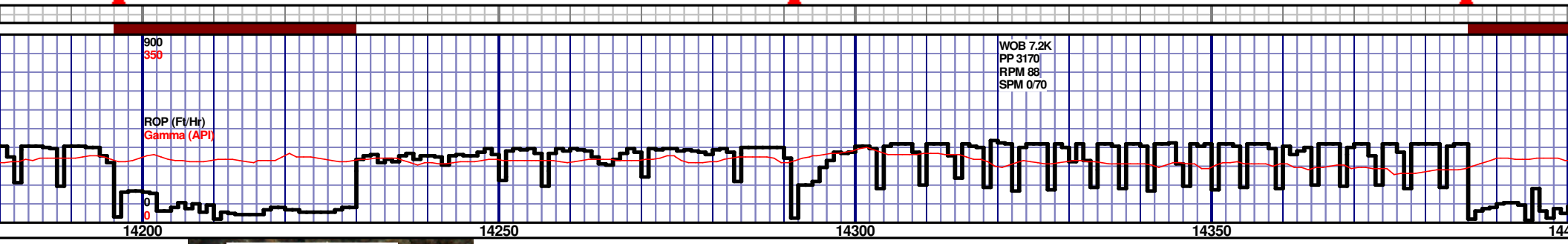
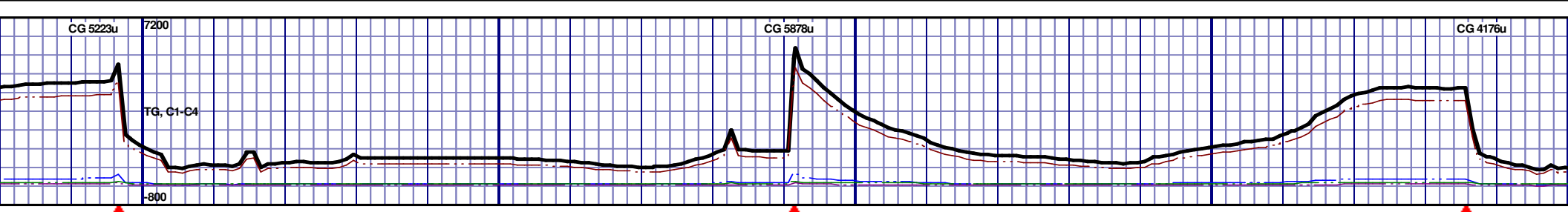


MD 13755 TVD 7082.92
INC 87.14 AZ 357.07
VS 7246.91

MD 13850 TVD 7086.41
INC 88.64 AZ 357.56
VS 7341.62

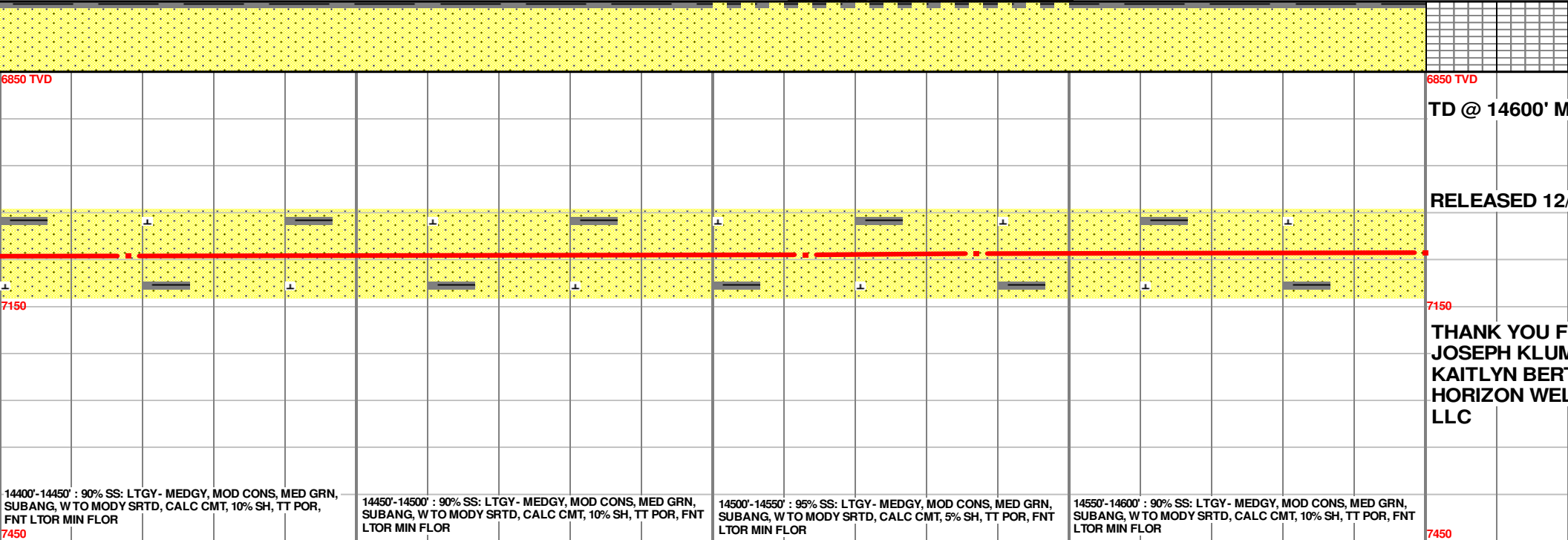
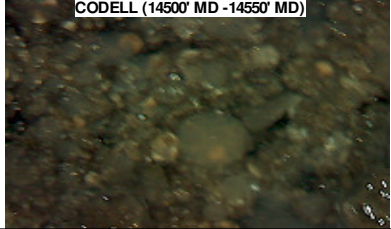
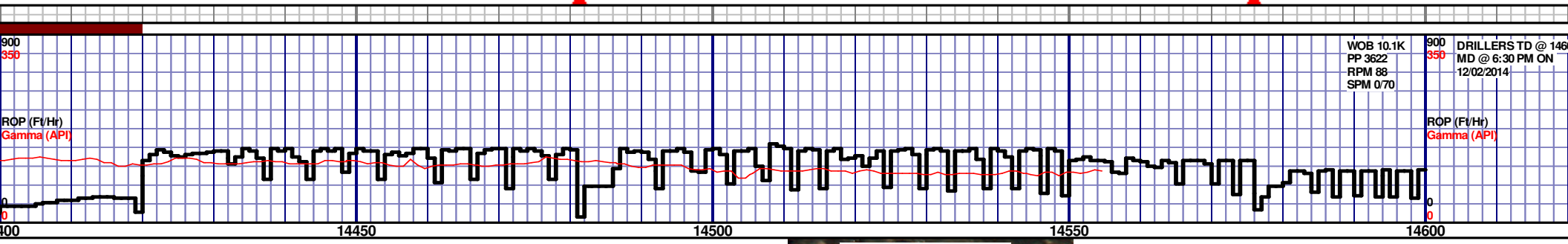
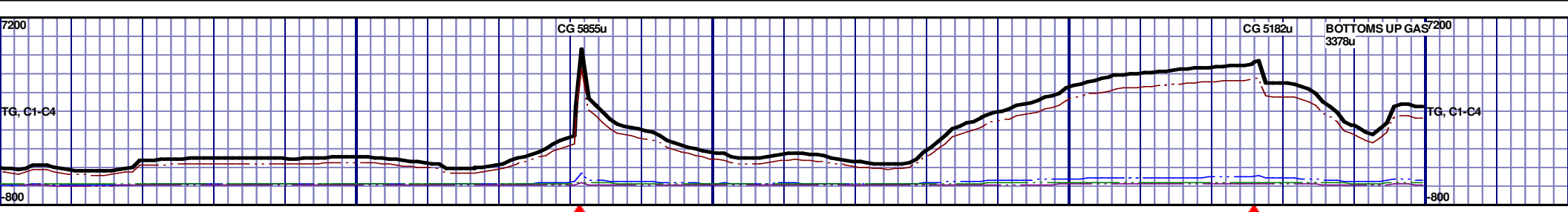
MD 13945 TVD 7087
INC 89.6 AZ 358.23
VS 7436.45

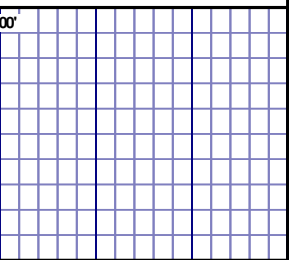
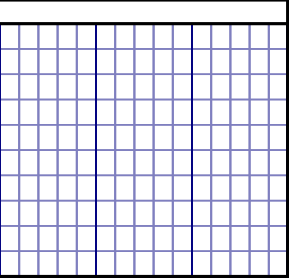




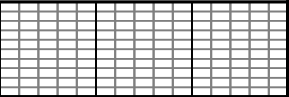
MD 14229 TVD 7067.42
INC 90.22 AZ 358.74
VS 7719.93

MD 14323 TVD 7086.41
INC 91.01 AZ 358.19
VS 7813.81





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02/2014		
FROM		
MPSTRA,		
TRAM AND		
LL LOGGING,		

