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Customer Information

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

Geologist: Cassidy Miller
Noble Energy Inc.

Mud Logging Details

Logger: Nikki Graber & Peter Brown

Log Interval: 2500' MD to 6750' MD

Start Date: June 27, 2013

Release Date: July 2, 2013

Well Information

Well Name: Wells Ranch USX AA23-67HN

Location: 24-6N-63W
1110' FNL, 220' FWL

County: Weld
State: Colorado

Drilling Rig: H&P 343

Total Depth: 11155' MD

TD Date: July 2, 2013

Formation: Niobrara C Chalk

KB Elevation: 4817'

GR Elevation: 4793'

API Number: 05-123-37172-0000

ROCK TYPES

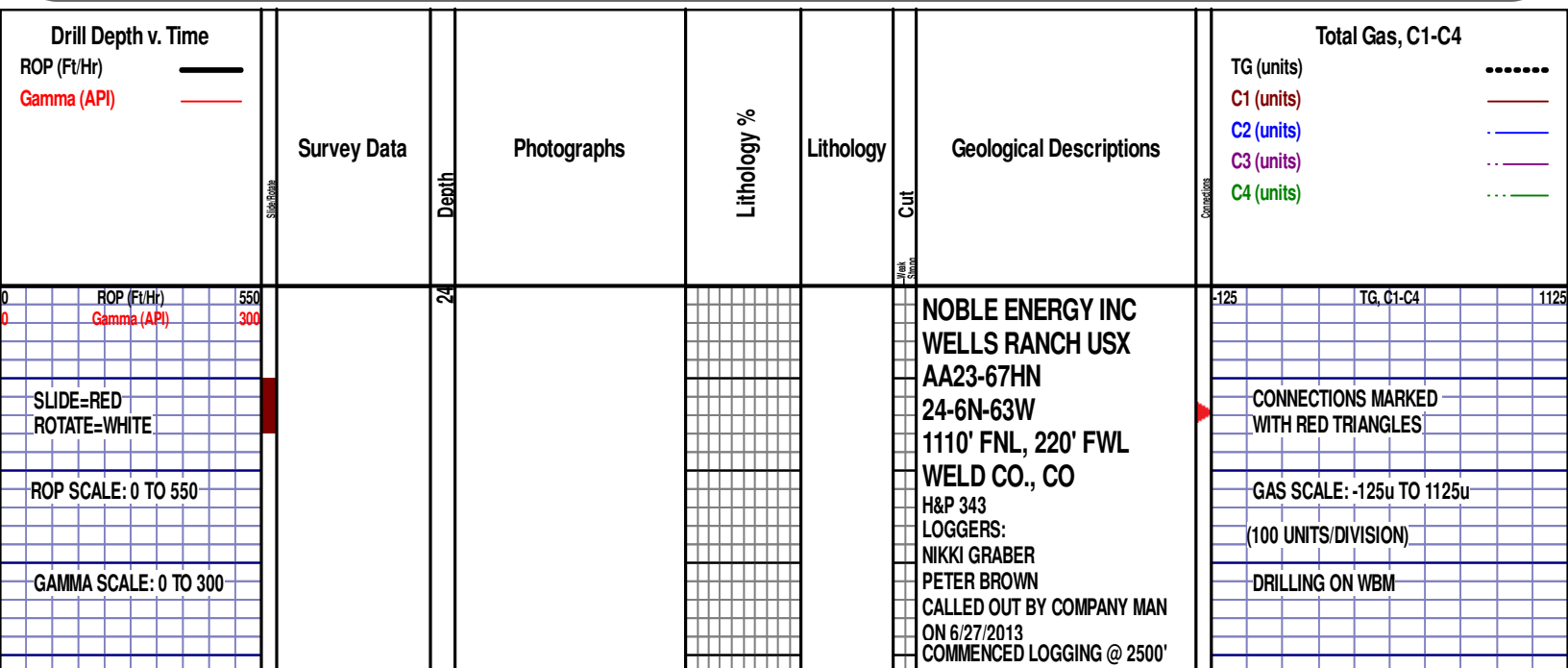
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 Brec
 Cht
 Clyst
 Coal
 Congl

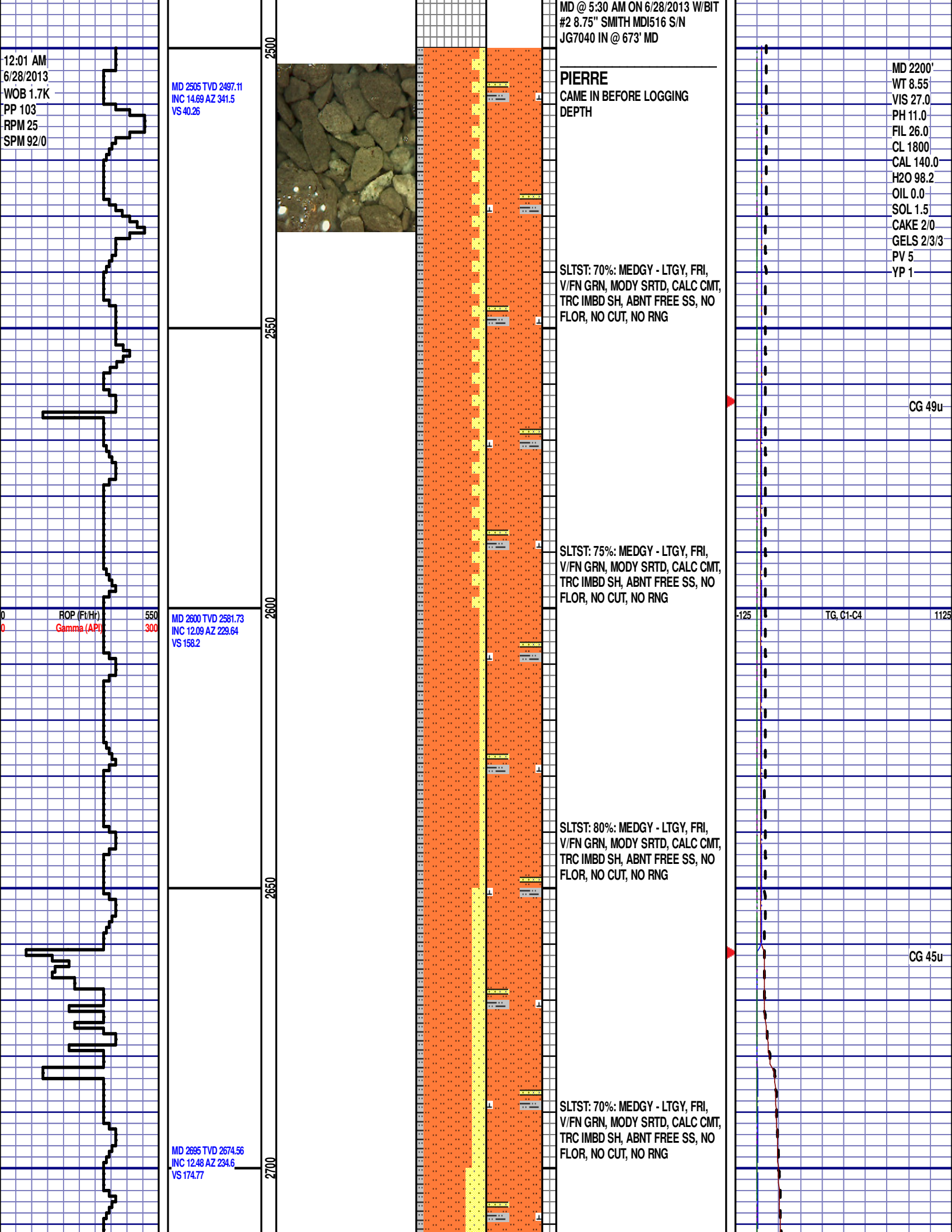
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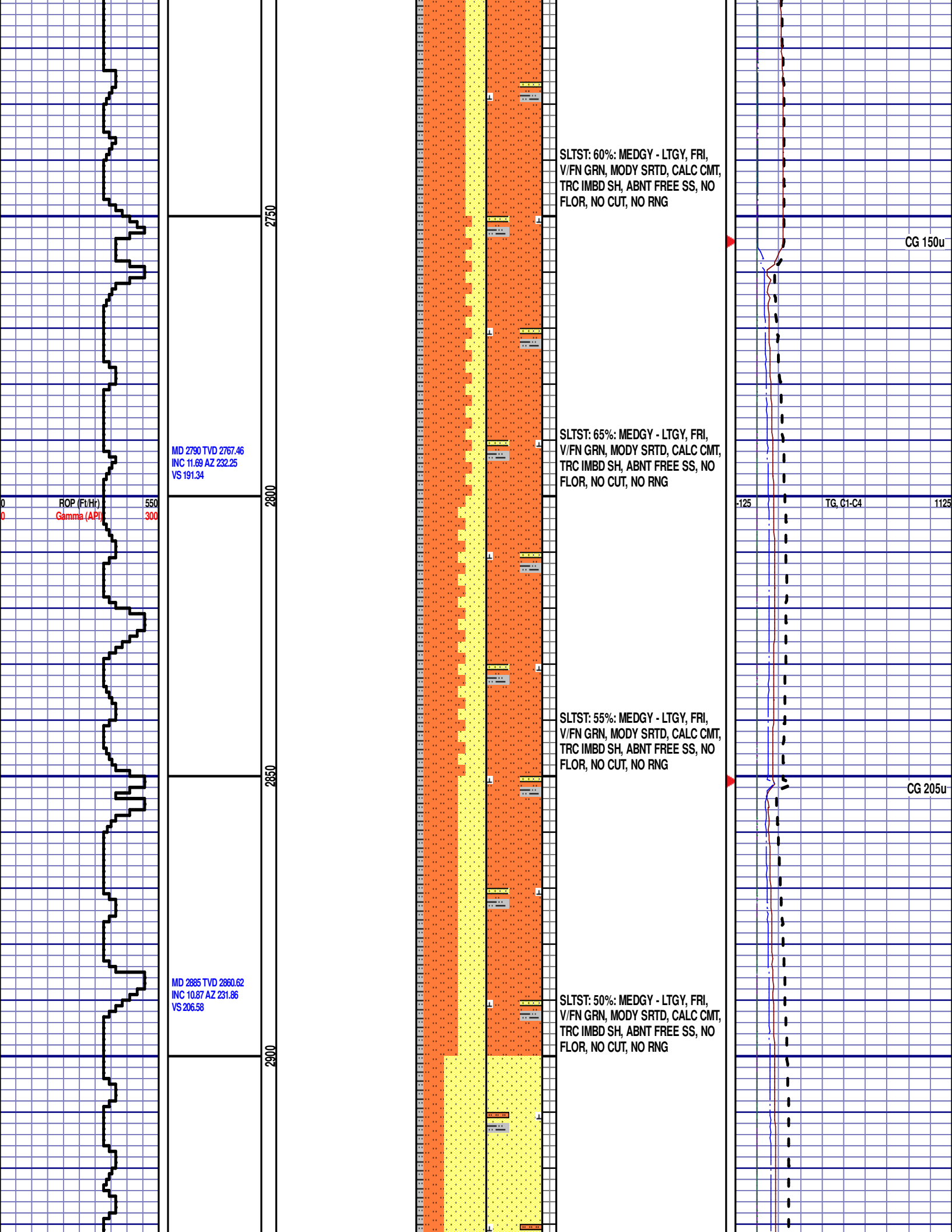
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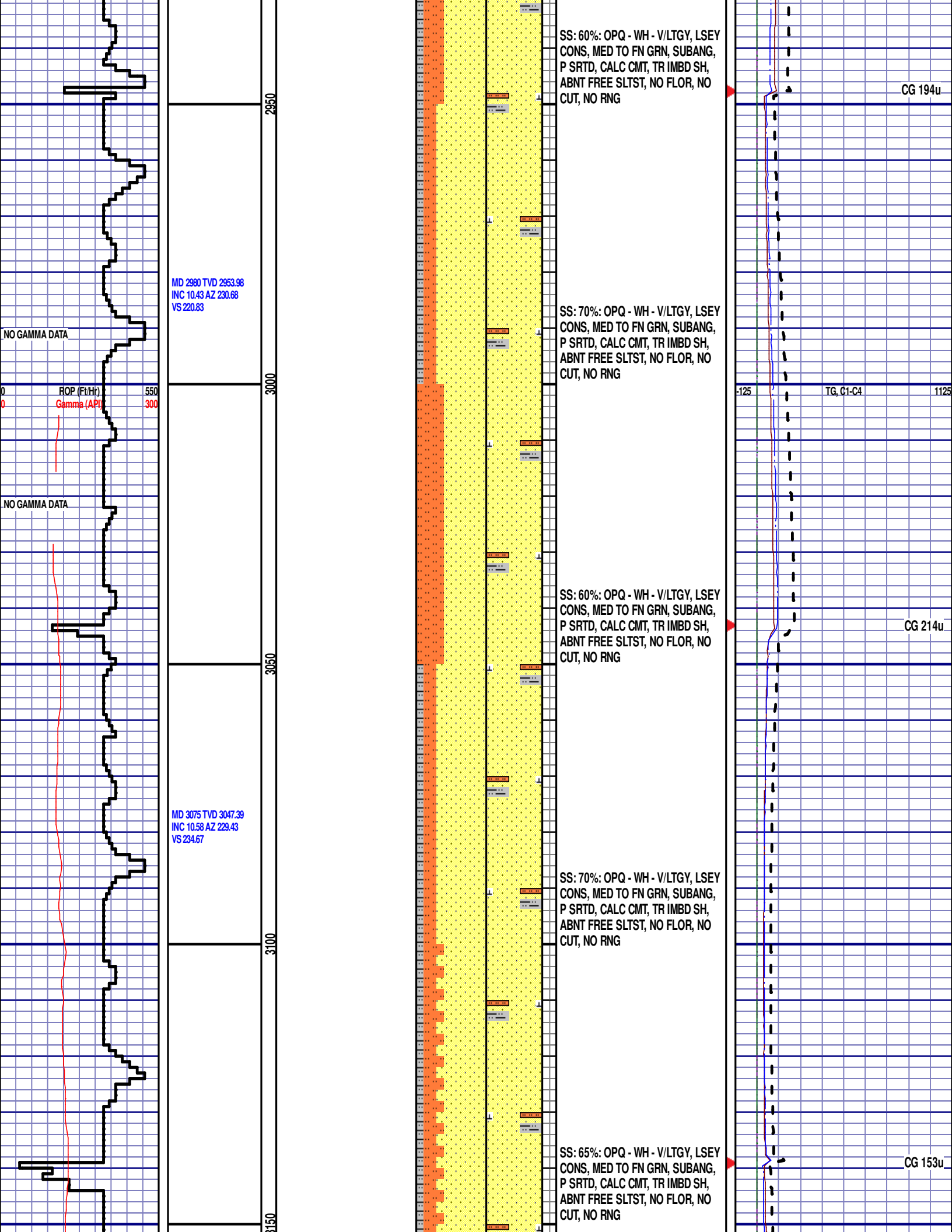
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 oshly gw
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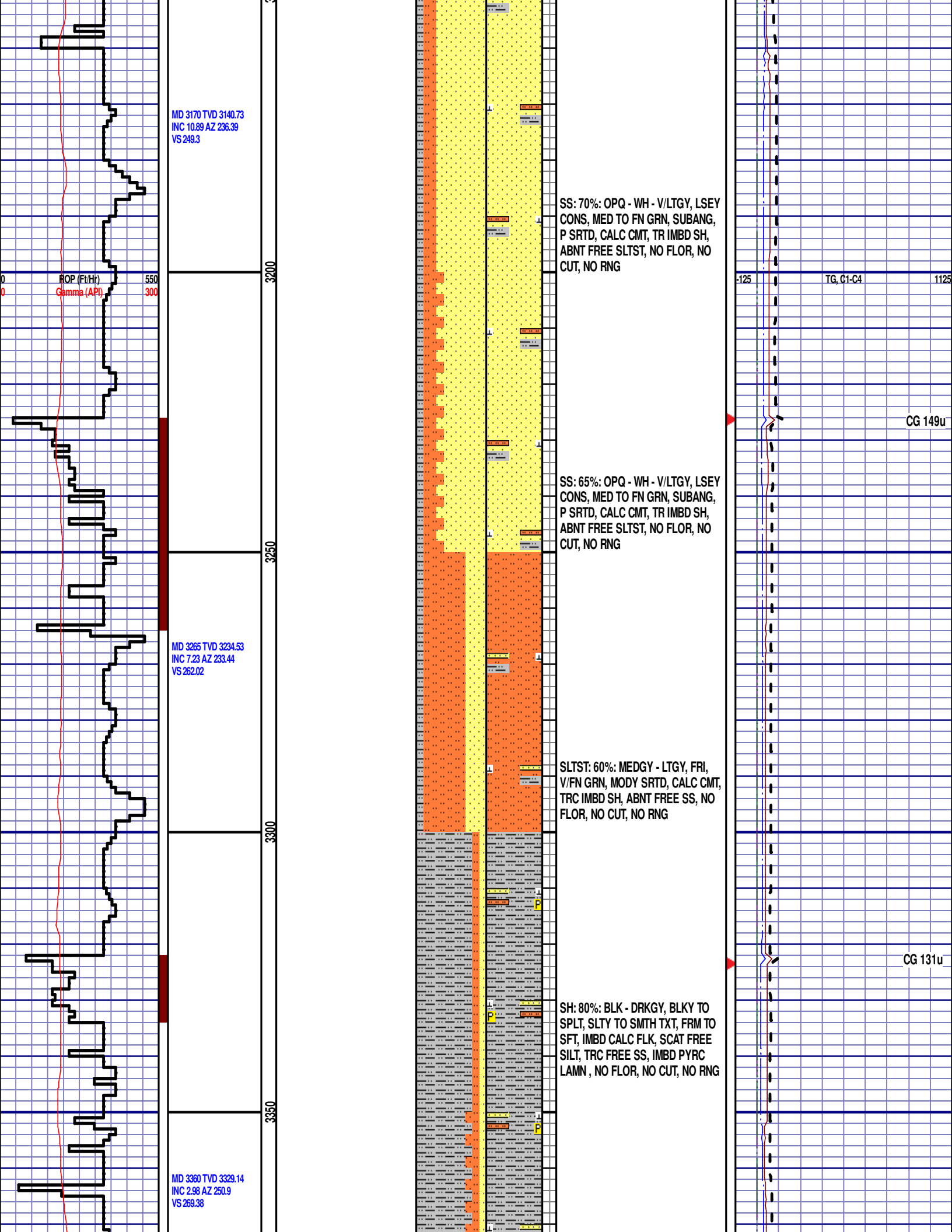
hvycrbsh
 NO SMPL
 Lsdetrit
 sltst
 sdy sh
 Cement











MD 3170 TVD 3140.73
INC 10.89 AZ 236.39
VS 249.3

SS: 70%: OPQ - WH - V/LTGY, LSEY
CONS, MED TO FN GRN, SUBANG,
P SRTD, CALC CMT, TR IMBD SH,
ABNT FREE SLTST, NO FLOR, NO
CUT, NO RNG

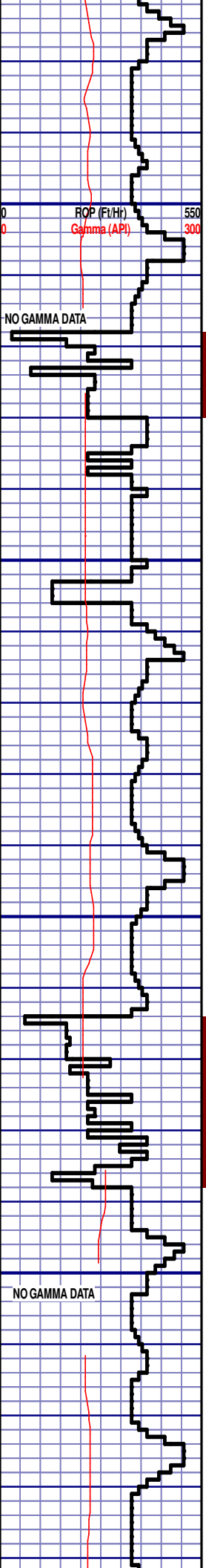
SS: 65%: OPQ - WH - V/LTGY, LSEY
CONS, MED TO FN GRN, SUBANG,
P SRTD, CALC CMT, TR IMBD SH,
ABNT FREE SLTST, NO FLOR, NO
CUT, NO RNG

SLTST: 60%: MEDGY - LTGY, FRI,
V/FN GRN, MODY SRTD, CALC CMT,
TRC IMBD SH, ABNT FREE SS, NO
FLOR, NO CUT, NO RNG

SH: 80%: BLK - DRKGY, BLKY TO
SPLT, SLTY TO SMTH TXT, FRM TO
SFT, IMBD CALC FLK, SCAT FREE
SILT, TRC FREE SS, IMBD PYRC
LAMN , NO FLOR, NO CUT, NO RNG

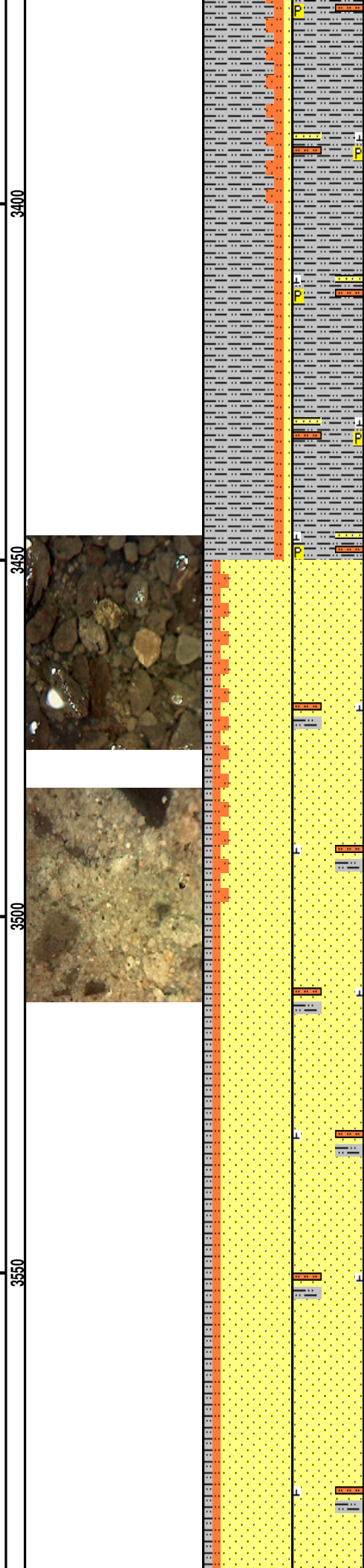
MD 3265 TVD 3234.53
INC 7.23 AZ 233.44
VS 262.02

MD 3360 TVD 3329.14
INC 2.98 AZ 250.9
VS 269.38



MD 3455 TVD 3424.07
INC 1.1 AZ 249.95
VS 272.62

MD 3550 TVD 3519.06
INC 2.12 AZ 40.46
VS 272.29



SH: 75%: BLK - DRKGY, BLKY TO SPLT, SLTY TO SMTH TXT, FRM TO SFT, IMBD CALC FLK, SCAT FREE SILT, TRC FREE SS, IMBD PYRC LAMN , NO FLOR, NO CUT, NO RNG

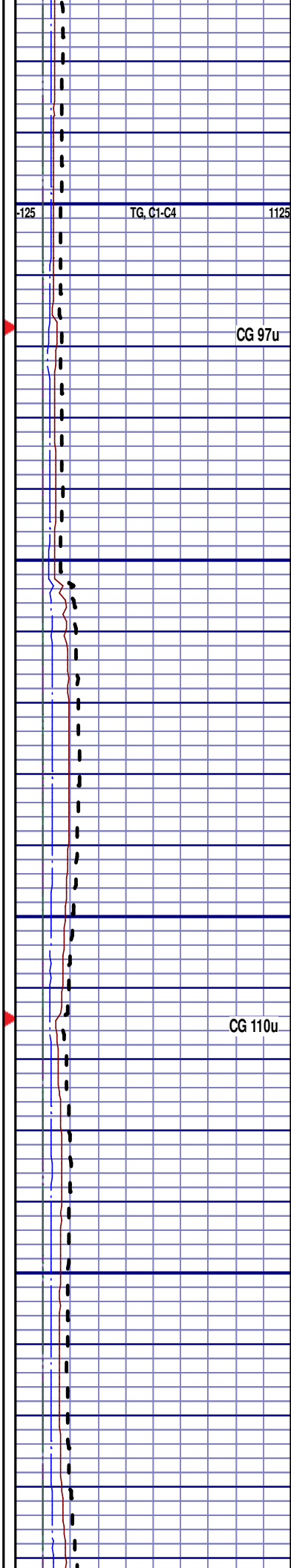
SH: 80%: BLK - DRKGY, BLKY TO SPLT, SLTY TO SMTH TXT, FRM TO SFT, IMBD CALC FLK, SCAT FREE SILT, TRC FREE SS, IMBD PYRC LAMN , NO FLOR, NO CUT, NO RNG

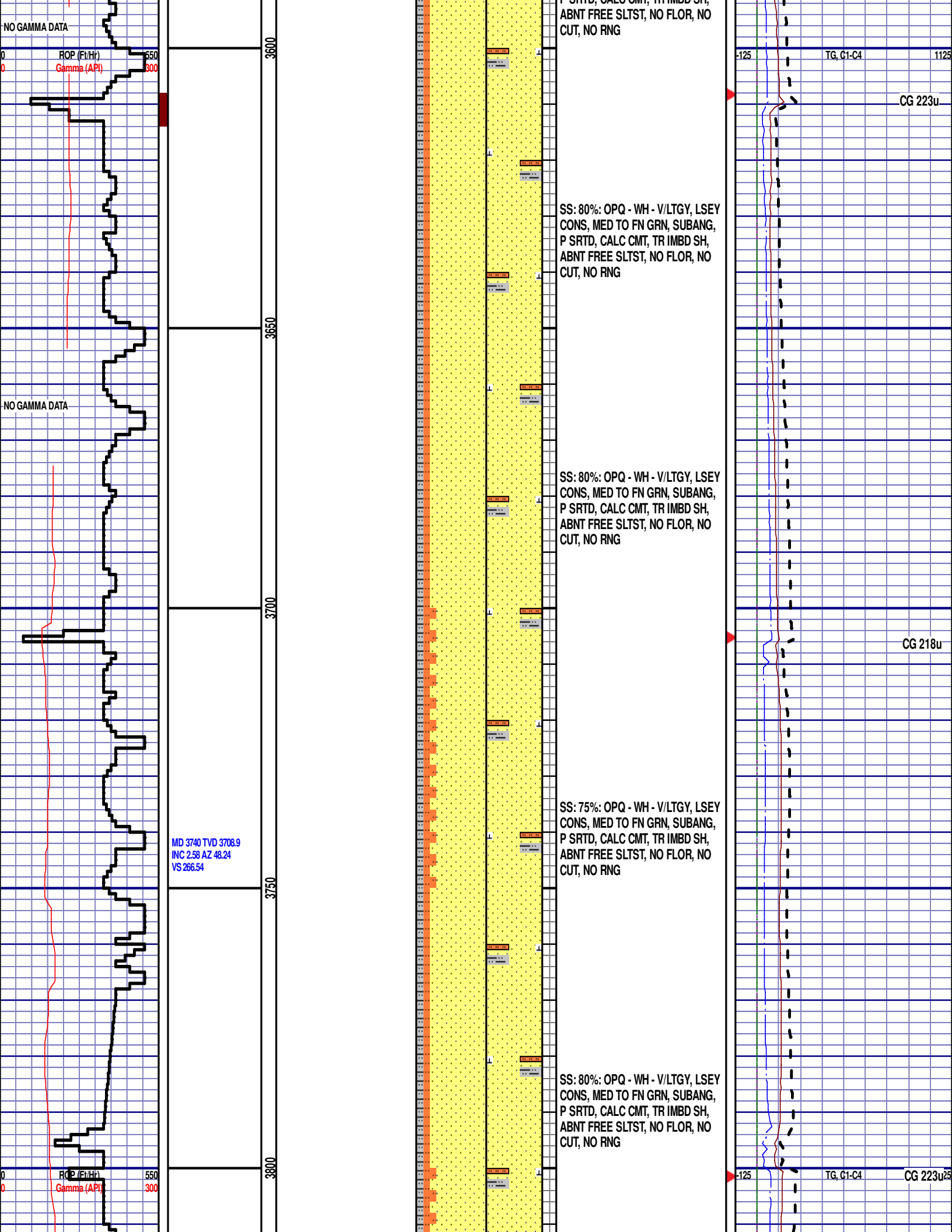
PARKMAN
3479' MD 3448' TVD

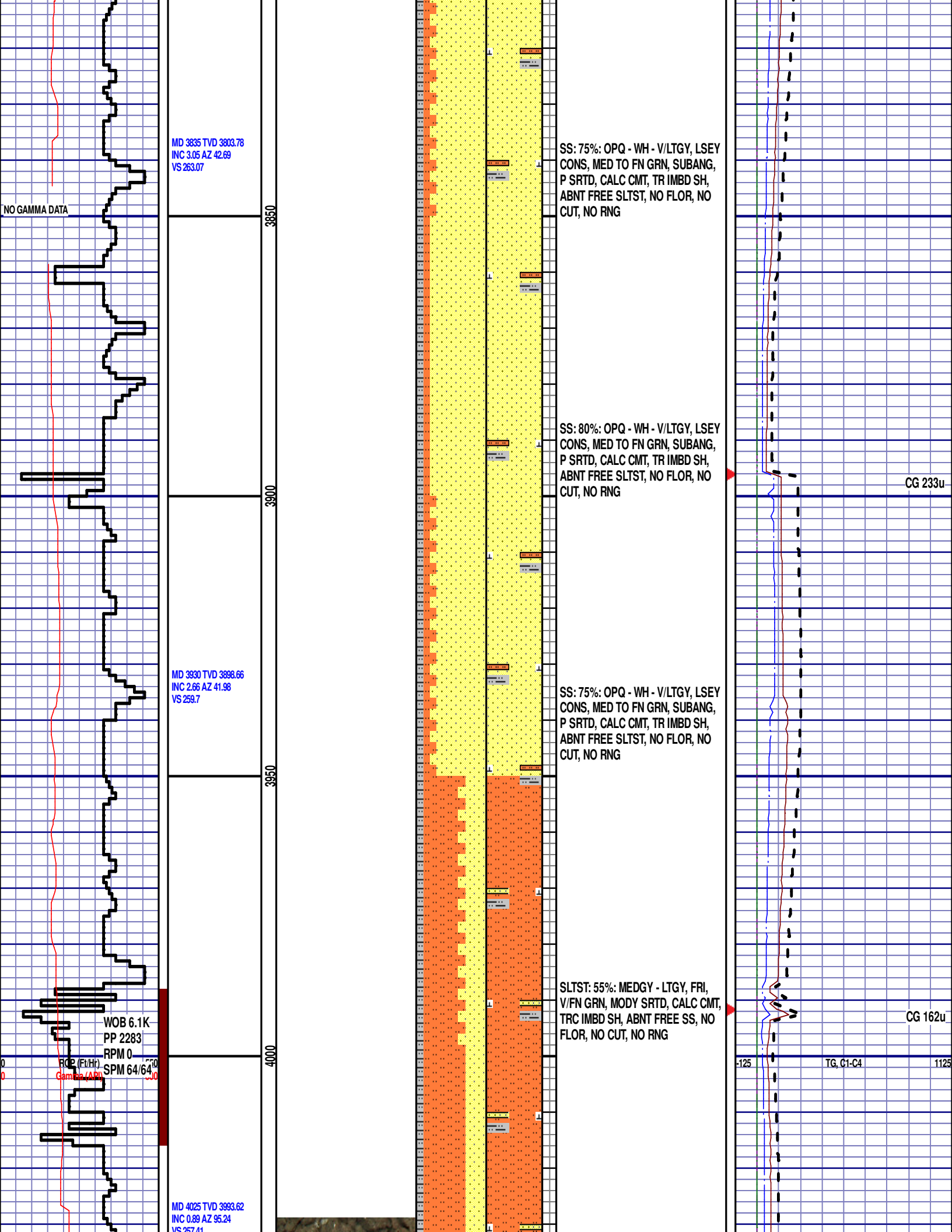
SS: 75%: OPQ - WH - V/LTGY, LSEY CONS, MED TO FN GRN, SUBANG, P SRTD, CALC CMT, TR IMBD SH, ABNT FREE SLTST, NO FLOR, NO CUT, NO RNG

SS: 80%: OPQ - WH - V/LTGY, LSEY CONS, MED TO FN GRN, SUBANG, P SRTD, CALC CMT, TR IMBD SH, ABNT FREE SLTST, NO FLOR, NO CUT, NO RNG

SS: 80%: OPQ - WH - V/LTGY, LSEY CONS, MED TO FN GRN, SUBANG, P SRTD, CALC CMT, TR IMBD SH







MD 3835 TVD 3803.78
INC 3.05 AZ 42.69
VS 263.07

NO GAMMA DATA

3850

SS: 75%: OPQ - WH - V/LTGY, LSEY
CONS, MED TO FN GRN, SUBANG,
P SRTD, CALC CMT, TR IMBD SH,
ABNT FREE SLTST, NO FLOR, NO
CUT, NO RNG

3900

SS: 80%: OPQ - WH - V/LTGY, LSEY
CONS, MED TO FN GRN, SUBANG,
P SRTD, CALC CMT, TR IMBD SH,
ABNT FREE SLTST, NO FLOR, NO
CUT, NO RNG

CG 233u

MD 3930 TVD 3898.66
INC 2.66 AZ 41.98
VS 259.7

3950

SS: 75%: OPQ - WH - V/LTGY, LSEY
CONS, MED TO FN GRN, SUBANG,
P SRTD, CALC CMT, TR IMBD SH,
ABNT FREE SLTST, NO FLOR, NO
CUT, NO RNG

4000

WOB 6.1K
PP 2283
RPM 0
SPM 64/64

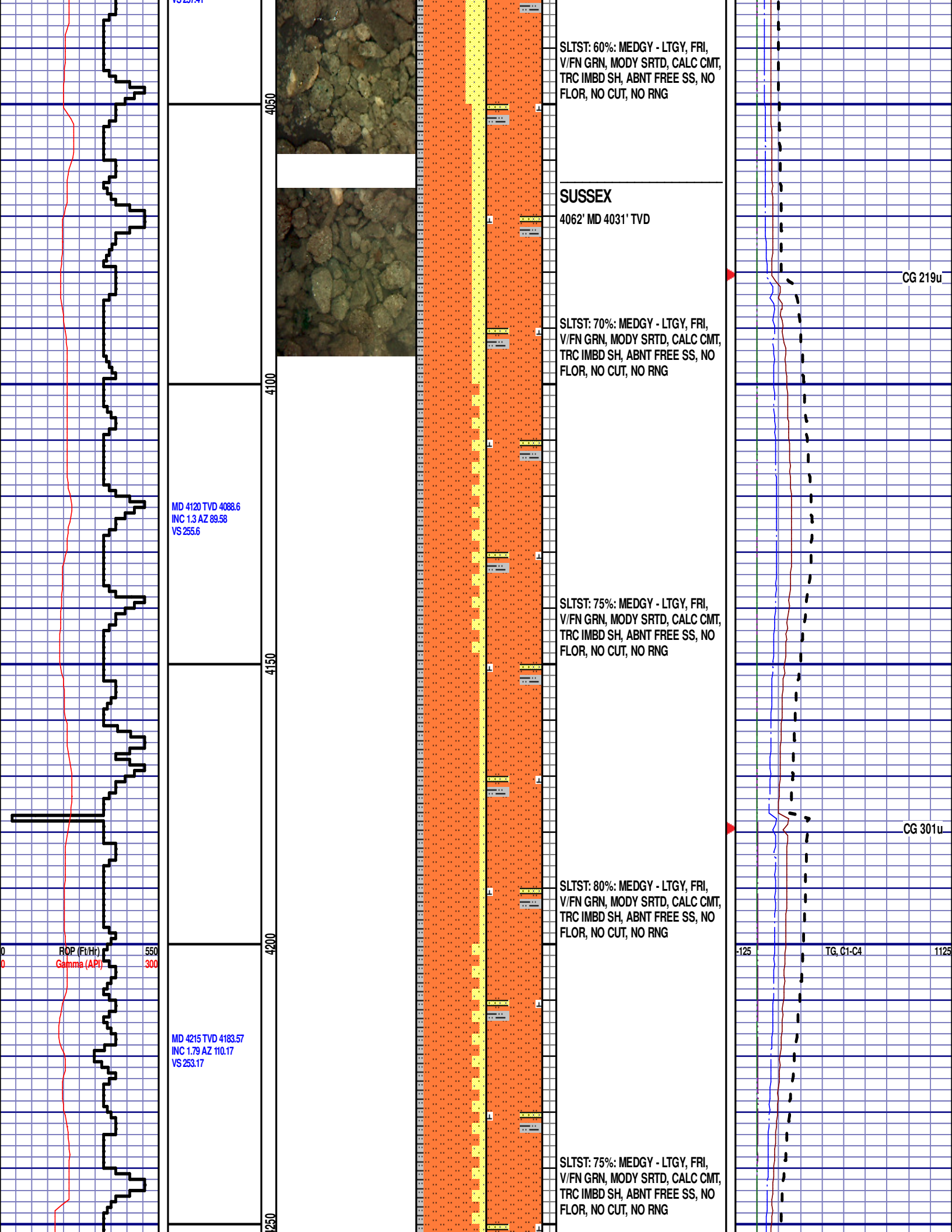
ROP (Ft/Hr) 0.70
Gamma (API) 100

SLTST: 55%: MEDGY - LTGY, FRI,
V/FN GRN, MODY SRTD, CALC CMT,
TRC IMBD SH, ABNT FREE SS, NO
FLOR, NO CUT, NO RNG

CG 162u

125 TG, C1-C4 1125

MD 4025 TVD 3993.62
INC 0.89 AZ 95.24
VS 257.41



SLTST: 60%: MEDGY - LTGY, FRI,
V/FN GRN, MODY SRTD, CALC CMT,
TRC IMBD SH, ABNT FREE SS, NO
FLOR, NO CUT, NO RNG

SUSSEX

4062' MD 4031' TVD

SLTST: 70%: MEDGY - LTGY, FRI,
V/FN GRN, MODY SRTD, CALC CMT,
TRC IMBD SH, ABNT FREE SS, NO
FLOR, NO CUT, NO RNG

SLTST: 75%: MEDGY - LTGY, FRI,
V/FN GRN, MODY SRTD, CALC CMT,
TRC IMBD SH, ABNT FREE SS, NO
FLOR, NO CUT, NO RNG

SLTST: 80%: MEDGY - LTGY, FRI,
V/FN GRN, MODY SRTD, CALC CMT,
TRC IMBD SH, ABNT FREE SS, NO
FLOR, NO CUT, NO RNG

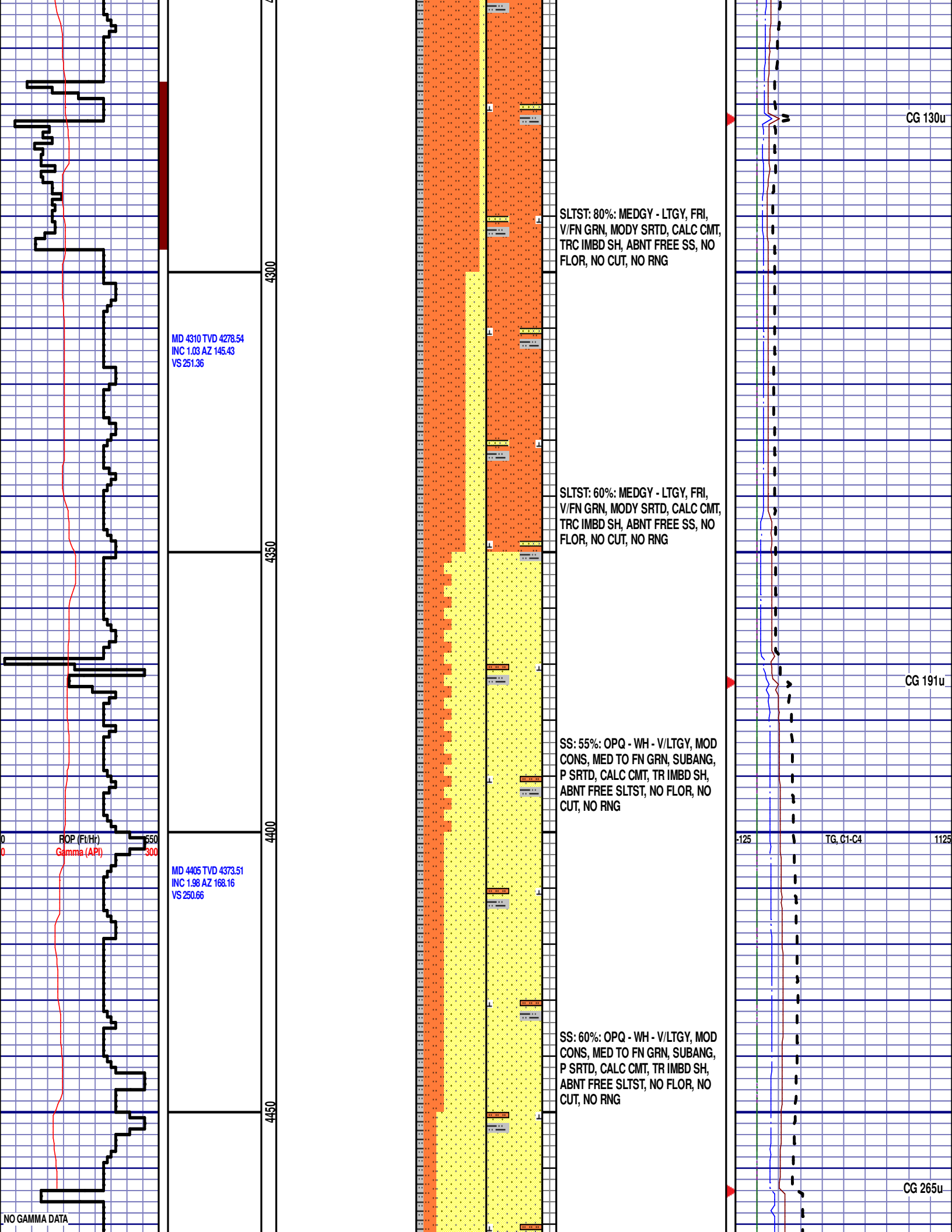
SLTST: 75%: MEDGY - LTGY, FRI,
V/FN GRN, MODY SRTD, CALC CMT,
TRC IMBD SH, ABNT FREE SS, NO
FLOR, NO CUT, NO RNG

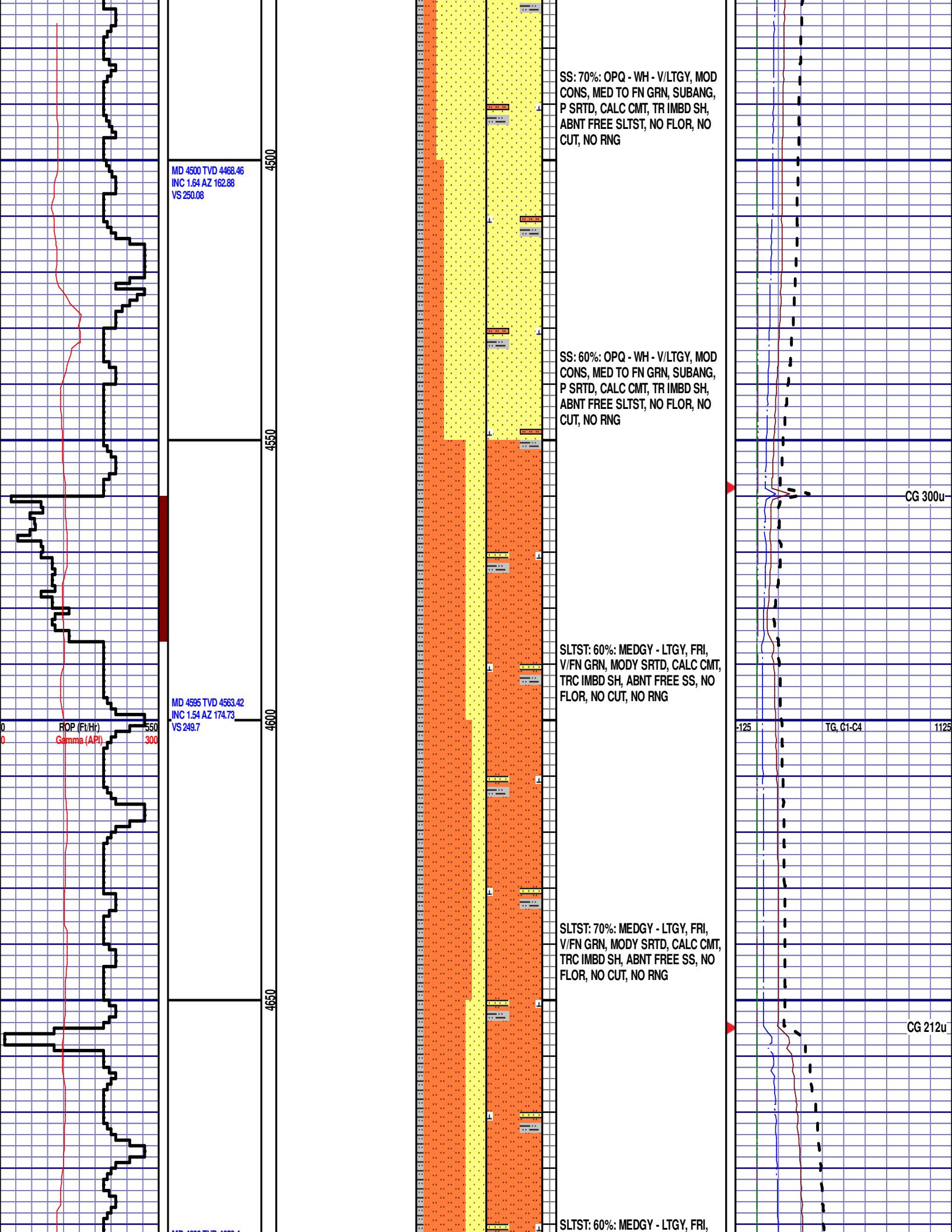
MD 4120 TVD 4088.6
INC 1.3 AZ 89.58
VS 255.6

MD 4215 TVD 4183.57
INC 1.79 AZ 110.17
VS 253.17

ROP (Ft/Hr)
Gamma (API)

125 TG, C1-C4 1125





MD 4500 TVD 4468.46
INC 1.64 AZ 162.88
VS 250.08

4500

4550

MD 4595 TVD 4563.42
INC 1.54 AZ 174.73
VS 249.7

4600

ROP (Ft/Hr)
Gamma (API)

350
300

4650

SS: 70%: OPQ - WH - V/LTGY, MOD
CONS, MED TO FN GRN, SUBANG,
P SRTD, CALC CMT, TR IMBD SH,
ABNT FREE SLTST, NO FLOR, NO
CUT, NO RNG

SS: 60%: OPQ - WH - V/LTGY, MOD
CONS, MED TO FN GRN, SUBANG,
P SRTD, CALC CMT, TR IMBD SH,
ABNT FREE SLTST, NO FLOR, NO
CUT, NO RNG

SLTST: 60%: MEDGY - LTGY, FRI,
V/FN GRN, MODY SRTD, CALC CMT,
TRC IMBD SH, ABNT FREE SS, NO
FLOR, NO CUT, NO RNG

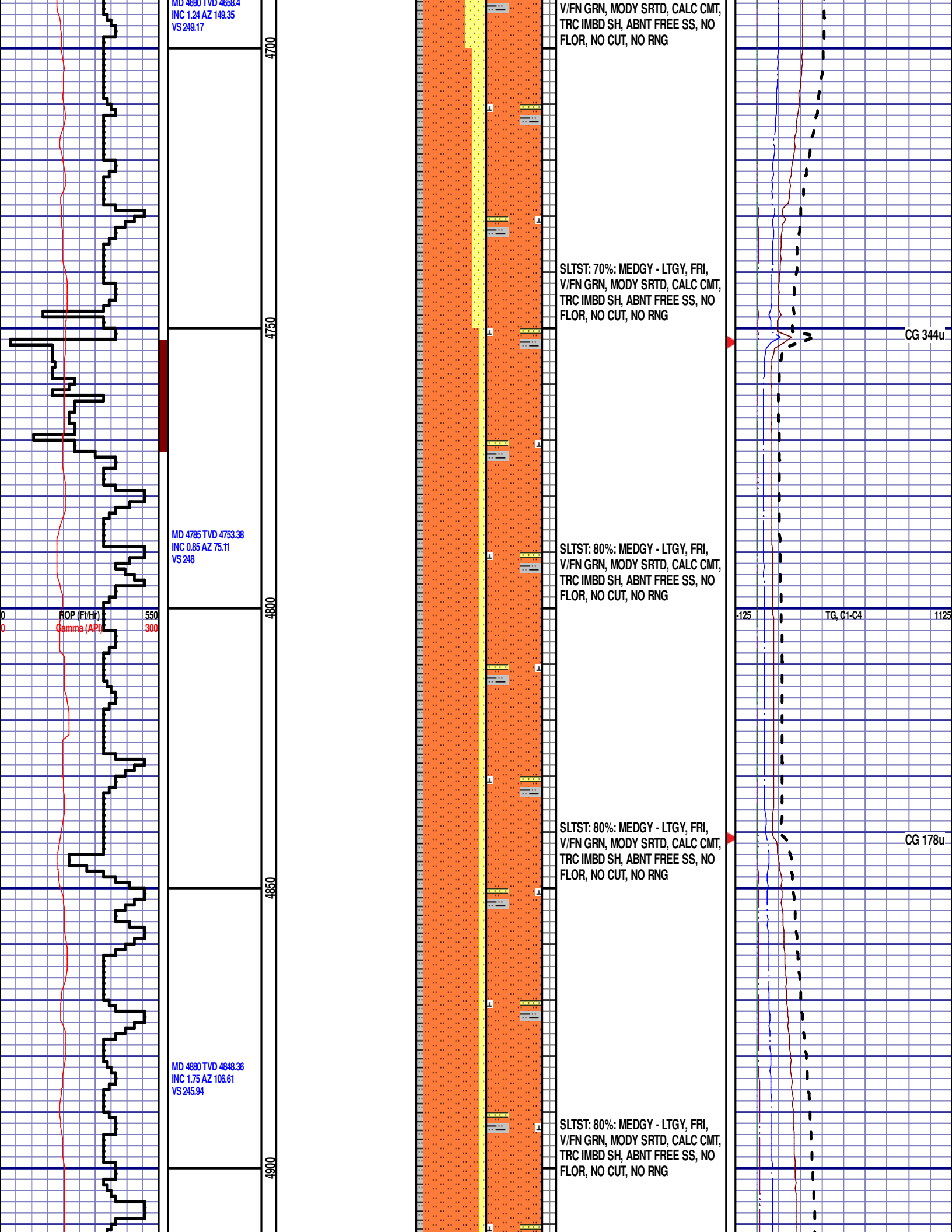
SLTST: 70%: MEDGY - LTGY, FRI,
V/FN GRN, MODY SRTD, CALC CMT,
TRC IMBD SH, ABNT FREE SS, NO
FLOR, NO CUT, NO RNG

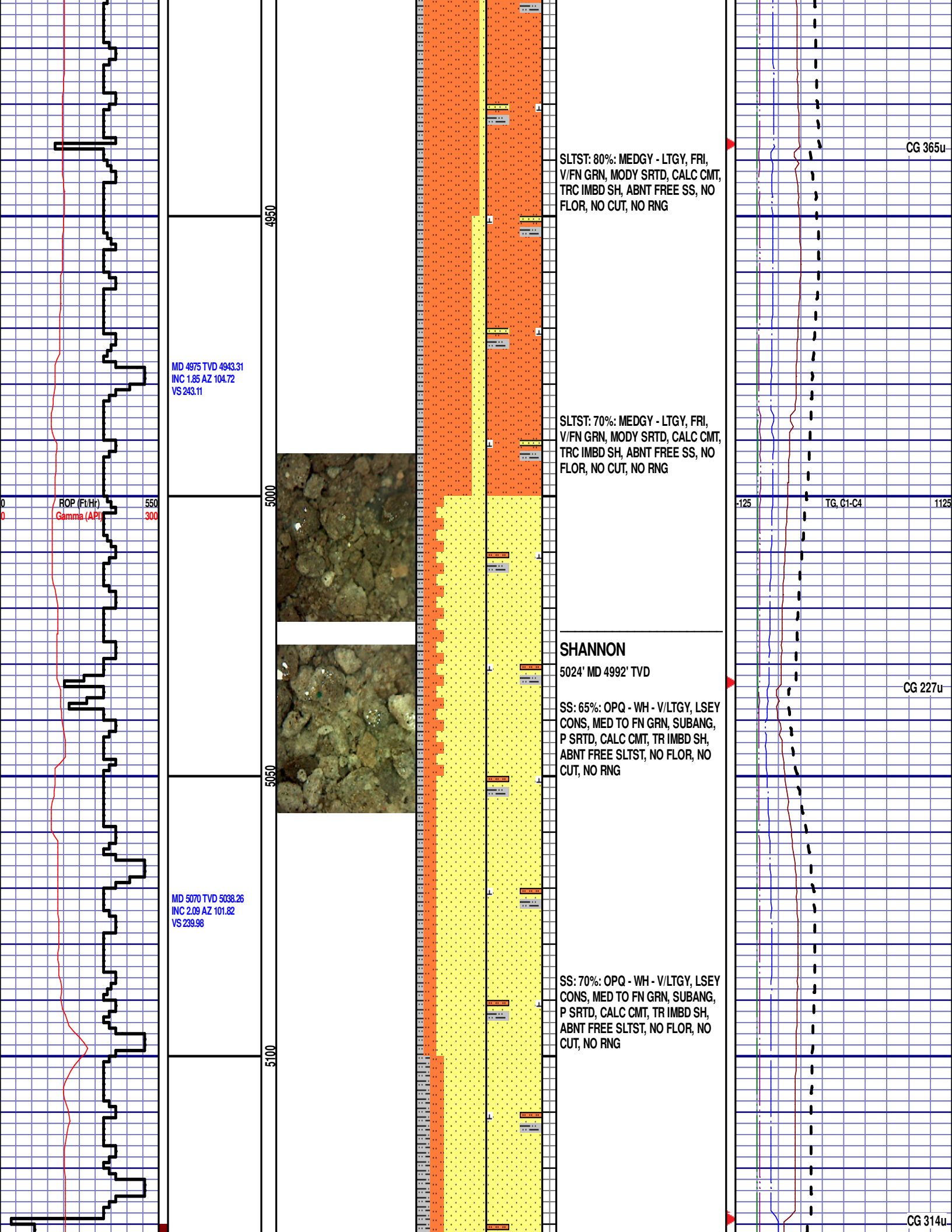
SLTST: 60%: MEDGY - LTGY, FRI,

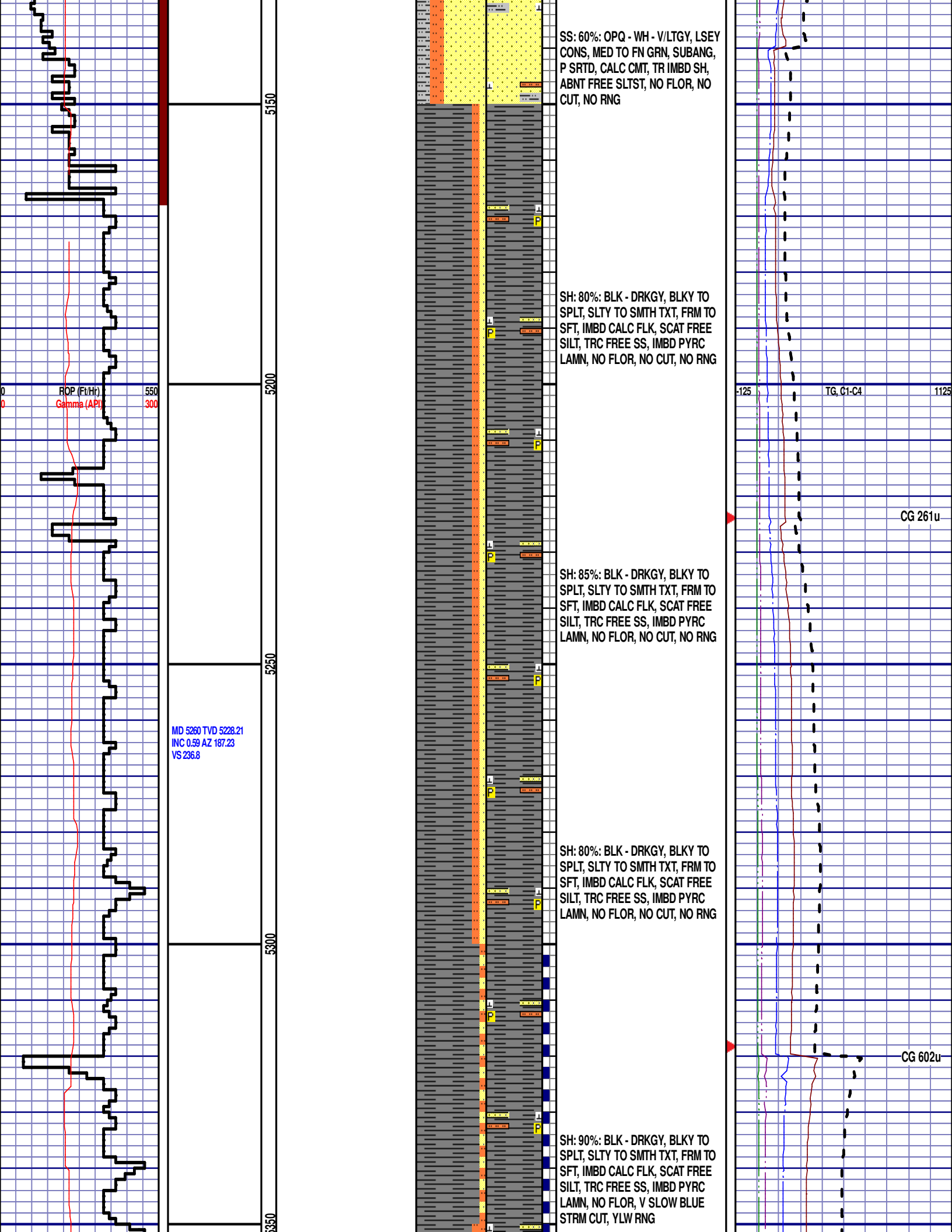
CG 300u

TG, C1-C4

CG 212u







MD 5355 TVD 5323.19
INC 1.5 AZ 164.09
VS 236.61

ROP (Ft/Hr)
Gamma (API)

NO GAMMA DATA

MD 5449 TVD 5417.19
INC 0.52 AZ 346.94
VS 236.41

MD 5544 TVD 5512.15
INC 2.7 AZ 102.43
VS 234.33

SH: 85%: BLK - DRKGY, BLKY TO
SPLT, SLTY TO SMTH TXT, FRM TO
SFT, IMBD CALC FLK, SCAT FREE
SILT, TRC FREE SS, IMBD PYRC
LAMN, NO FLOR, V SLOW BLUE
STRM CUT, YLW RNG

SH: 80%: BLK - DRKGY, BLKY TO
SPLT, SLTY TO SMTH TXT, FRM TO
SFT, IMBD CALC FLK, SCAT FREE
SILT, TRC FREE SS, IMBD PYRC
LAMN, NO FLOR, V SLOW BLUE
STRM CUT, YLW RNG

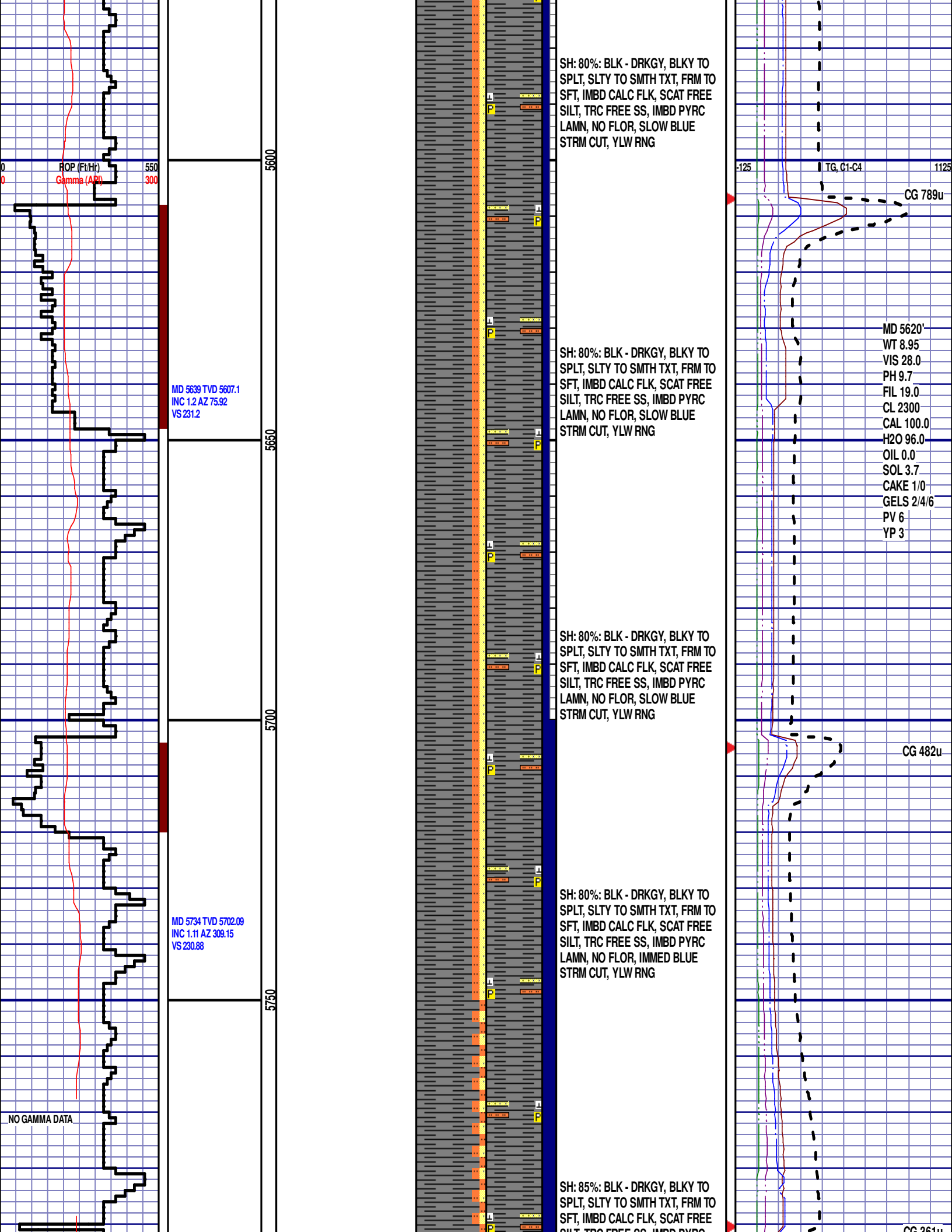
SH: 85%: BLK - DRKGY, BLKY TO
SPLT, SLTY TO SMTH TXT, FRM TO
SFT, IMBD CALC FLK, SCAT FREE
SILT, TRC FREE SS, IMBD PYRC
LAMN, NO FLOR, V SLOW BLUE
STRM CUT, YLW RNG

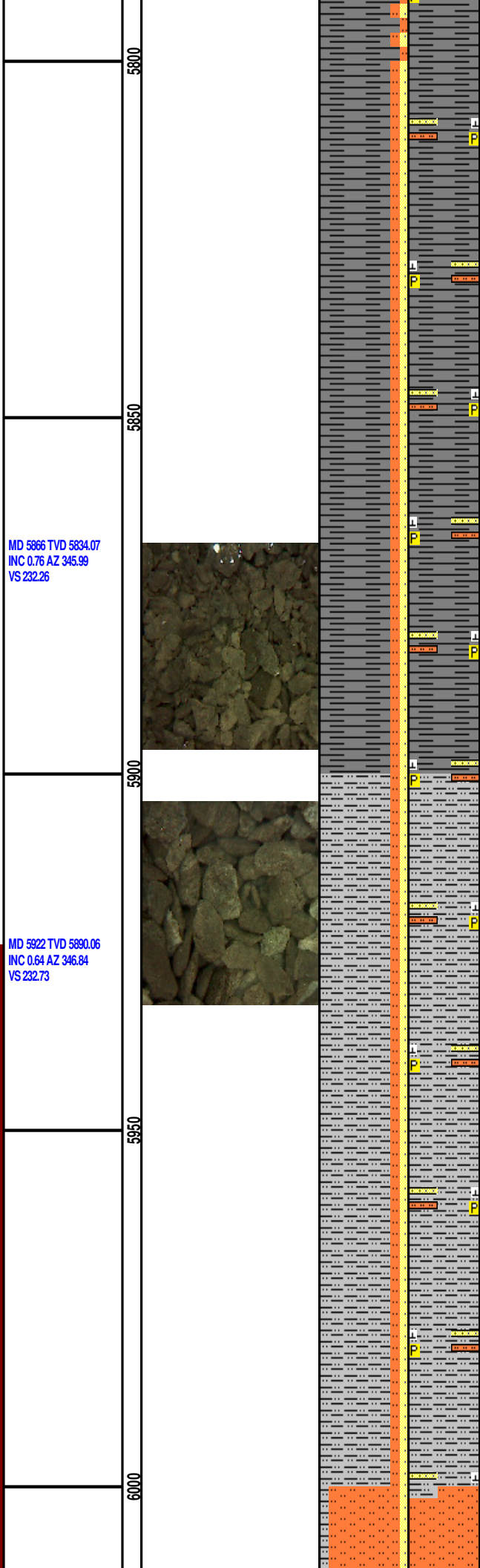
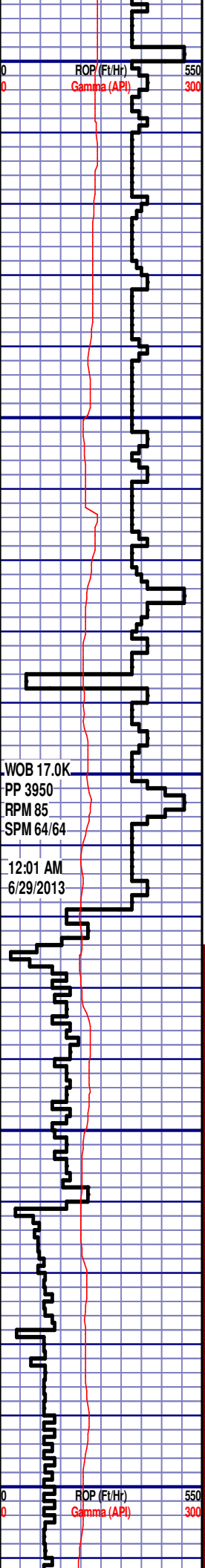
SH: 80%: BLK - DRKGY, BLKY TO
SPLT, SLTY TO SMTH TXT, FRM TO
SFT, IMBD CALC FLK, SCAT FREE
SILT, TRC FREE SS, IMBD PYRC
LAMN, NO FLOR, V SLOW BLUE
STRM CUT, YLW RNG

-125 TG, C1-C4 1125

CG 464u

CG 335u





SILI, IRC FREE SS, IMBD PYRC
LAMN, NO FLOR, IMMED BLUE
STRM CUT, YLW RNG

SH: 80%: BLK - DRKGY, BLKY TO
SPLT, SLTY TO SMTH TXT, FRM TO
SFT, IMBD CALC FLK, SCAT FREE
SILT, TRC FREE SS, IMBD PYRC
LAMN, NO FLOR, IMMED BLUE
STRM CUT, YLW RNG

**SH: 80%: BLK - DRKGY, BLKY TO
SPLT, SLTY TO SMTH TXT, FRM TO
SFT, IMBD CALC FLK, SCAT FREE
SILT, TRC FREE SS, IMBD PYRC
LAMN, NO FLOR, IMMED BLUE
STRM CUT. YLW RNG**

TEEPEE BUTTES

5904' MD 5872' TVD

TOOH @ 4:15 PM ON 6/28/2013 @ 5923' MD TO PICK UP A NEW BIT AND MOTOR. TIH @ 5:00 PM ON 6/28/13. RESUMED DRILLING @ 11:30PM ON 6/28/13 W/BIT #3 6.75" HDBS FXD 55M S/N 12076355.

SH: 80%: BLK - DRKGY, BLKY TO
SPLT, SLTY TO SMTH TXT, FRM TO
SFT, IMBD CALC FLK, SCAT FREE
SILT, TRC FREE SS, IMBD PYRC
LAMN, NO FLOR, IMMED BLUE
STRM CUT, YLW RNG

SH: 80%: BLK - DRKGY, BLKY TO
SPLT, SLTY TO SMTH TXT, FRM TO
SFT, IMBD CALC FLK, SCAT FREE
SILT, TRC FREE SS, IMBD PYRC
LAMN, NO FLOR, IMMED BLUE
STRM CUT, YLW RNG

