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Customer Information

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

Geologist: Renee Clackler
Noble Energy Inc.

Mud Logging Details

Logger: Ross Apodaca &
Dan King

Log Interval: 2500' MD to 6550' MD

Start Date: June 11, 2014

Release Date: June 16, 2014

Well Information

Well Name: Wells Ranch
AE30-64-1BHNA

Location: 30-6N-62W
1086' FSL, 65' FWL

County: Weld
State: Colorado

Drilling Rig: H&P 277

Total Depth: 11901' MD

TD Date: June 16, 2014

Formation: Niobrara A Marl

KB Elevation: 4777'

GR Elevation: 4753'

API Number: 05-123-38688-0000

ROCK TYPES

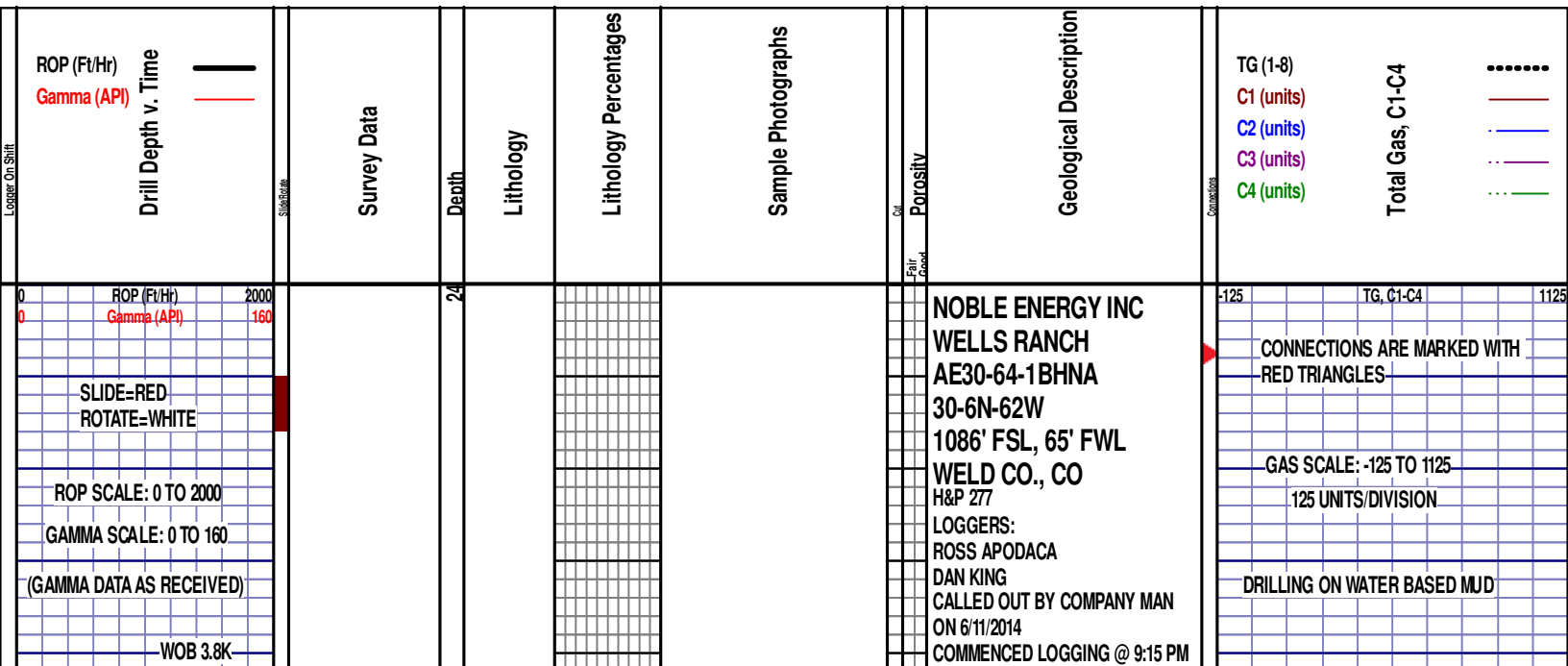
Anhy
Bent
Cht
Clyst
Coal
Congl
Dol

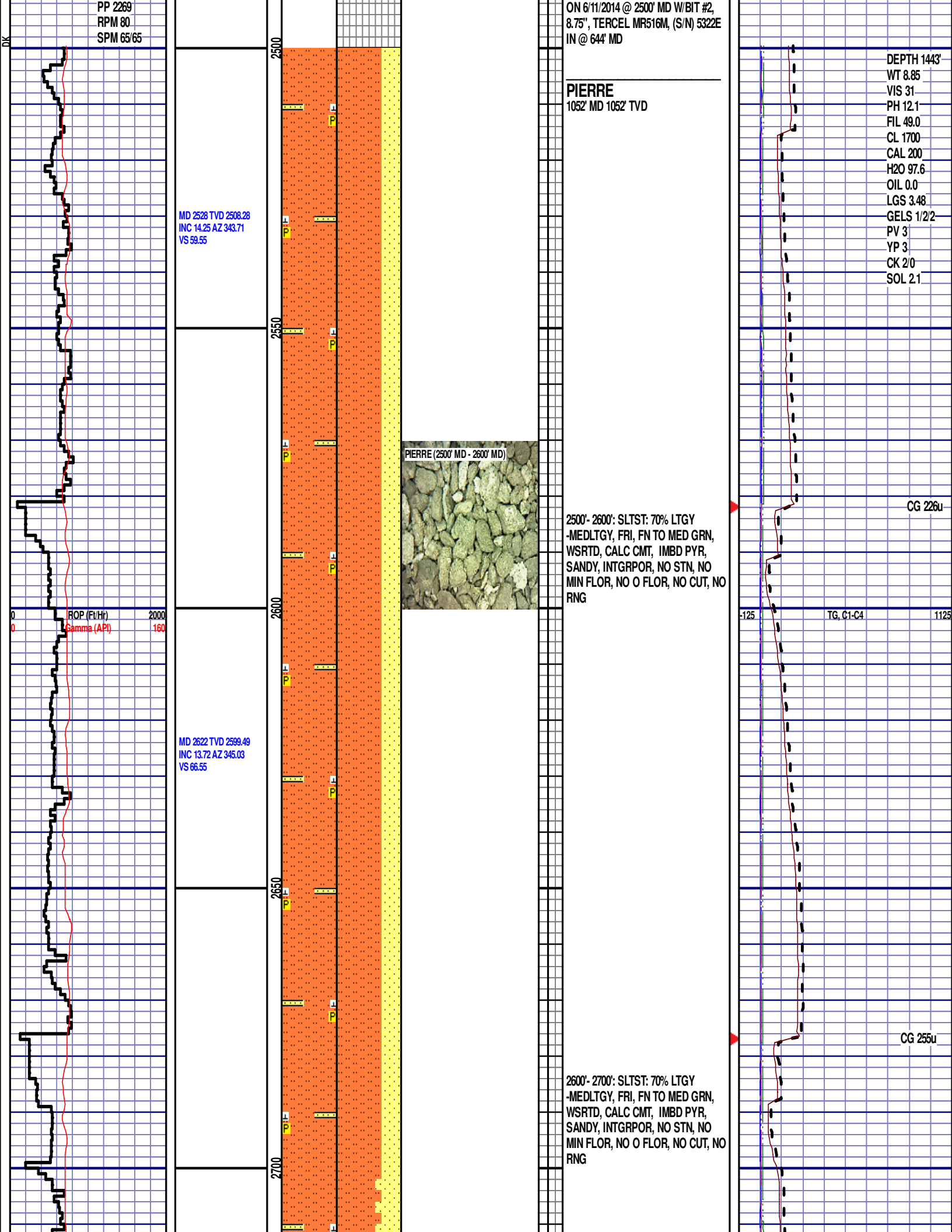
Gyp
Igne
Lmst
Meta
Mrlst
Salt
Shale

Shcol
Chalk
Slstst
Ss
Till
gw
lmywash

ogw
olmywash
oshly gw
shly gw
sdygw
hvyrcbsh
nosmpl

Lsdetrit
sltst
sdy sh





MD 2716 TVD 2690.86
INC 13.45 AZ 345.03
VS 73.1

2750

2800

2850

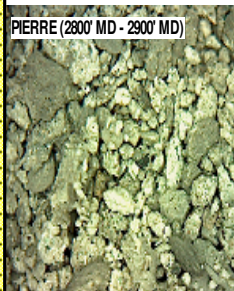
2900

MD 2811 TVD 2783.37
INC 12.84 AZ 343.8
VS 79.73

MD 2906 TVD 2875.75
INC 14.16 AZ 346.08
VS 86.32

2700'- 2800': SLTST: 65% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SANDY, INTGRPOR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

PIERRE (2800' MD - 2900' MD)

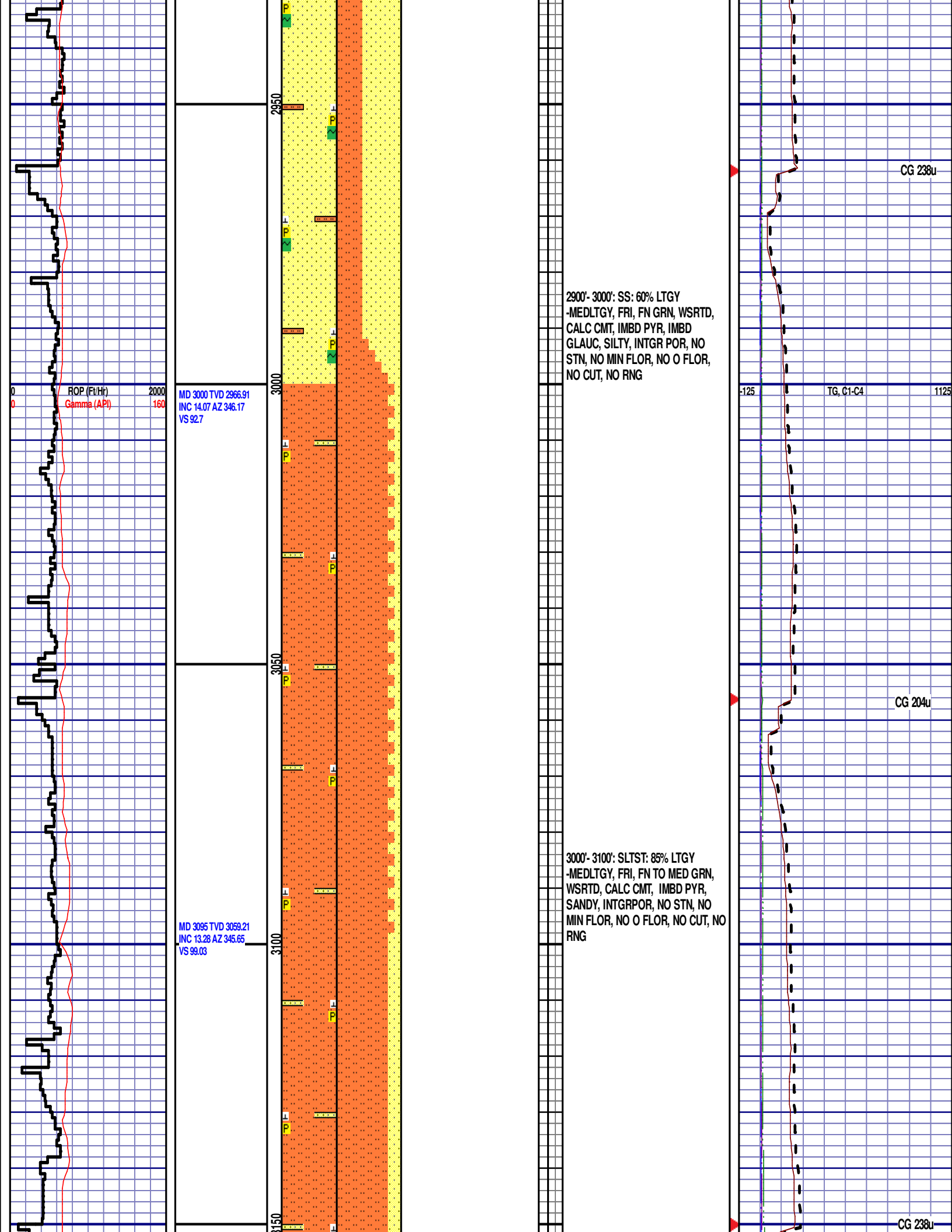


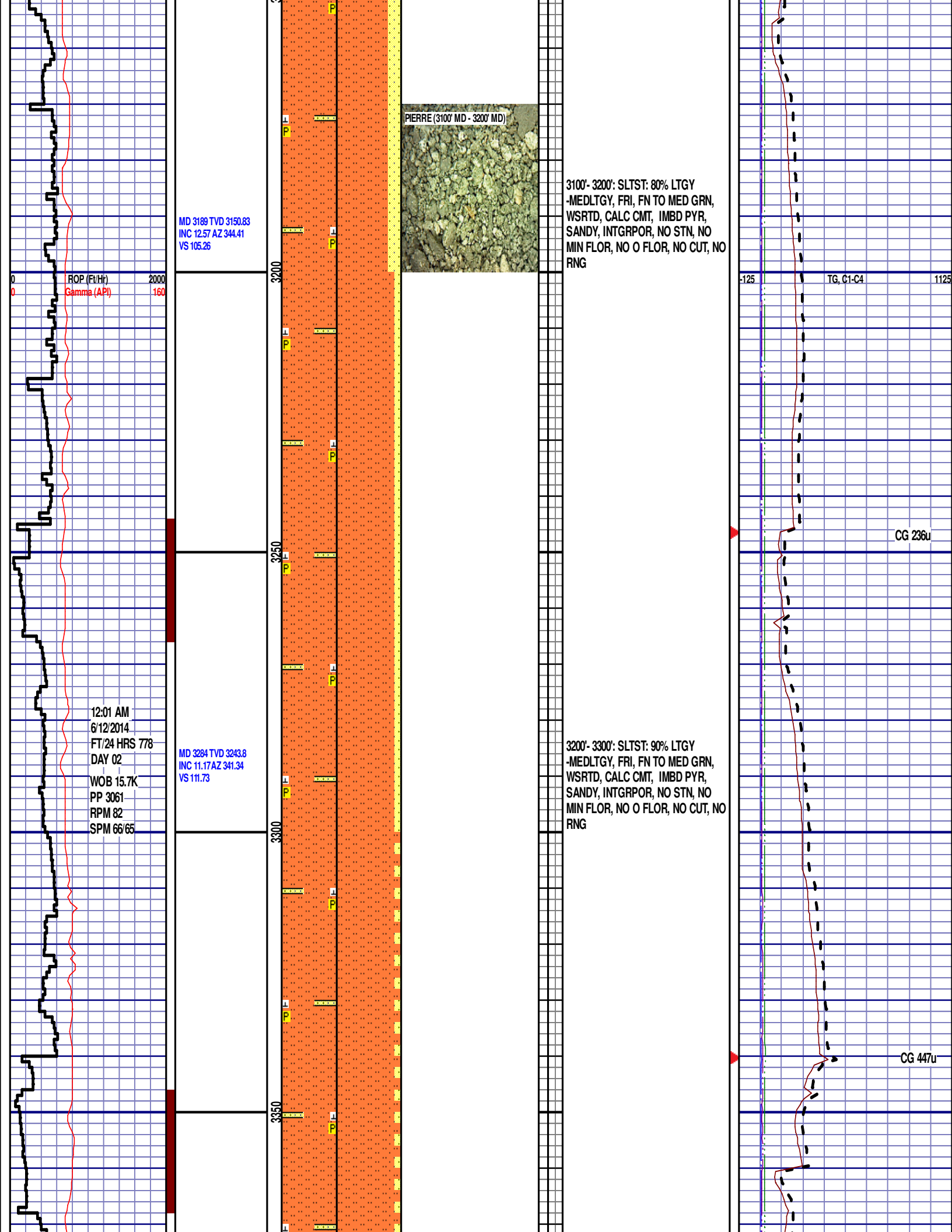
2800'- 2900': SS: 60% LTGY
-MEDLTGY, FRI, FN GRN, WSRTD,
CALC CMT, IMBD PYR, IMBD
GLAUC, SILTY, INTGR POR, NO
STN, NO MIN FLOR, NO O FLOR,
NO CUT, NO RNG

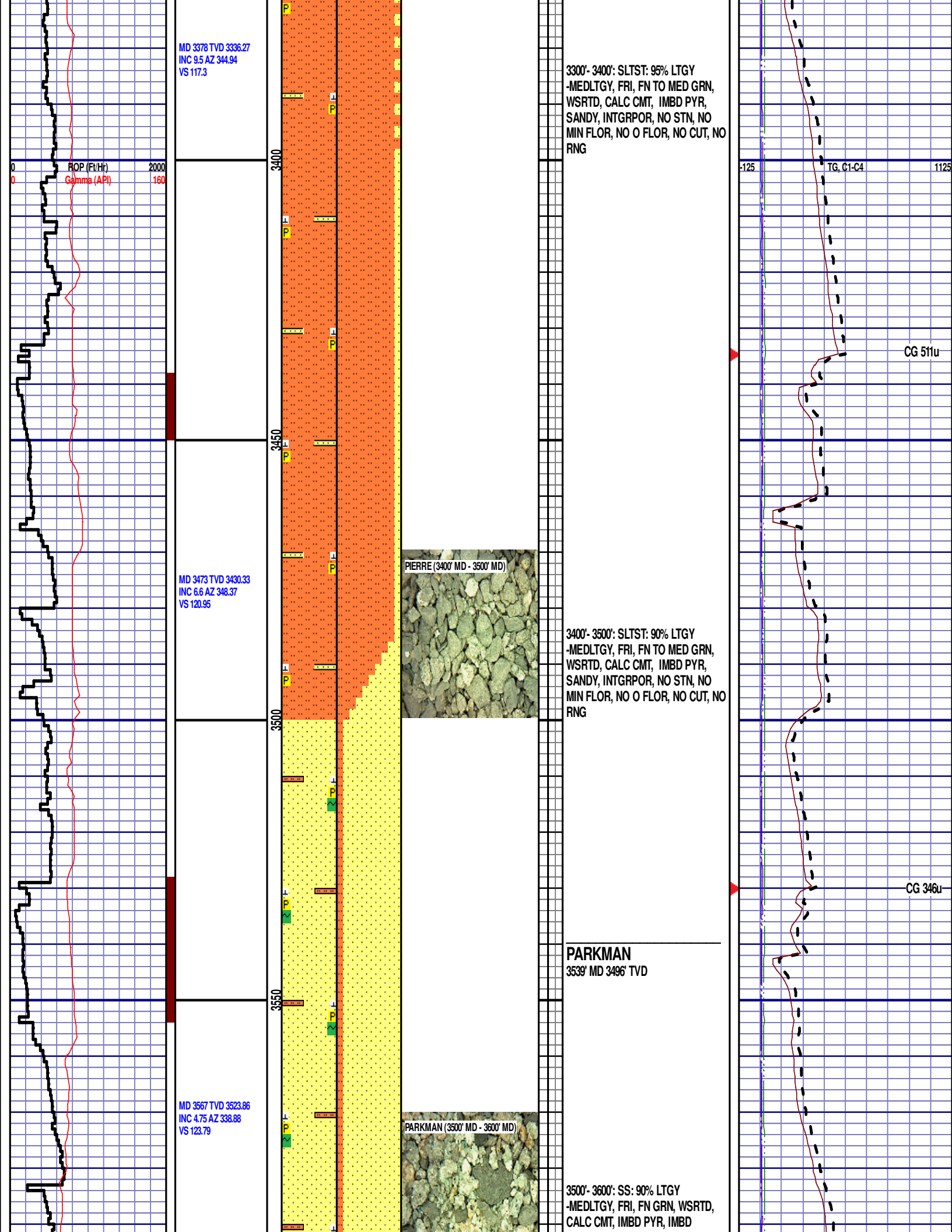
CG 224u

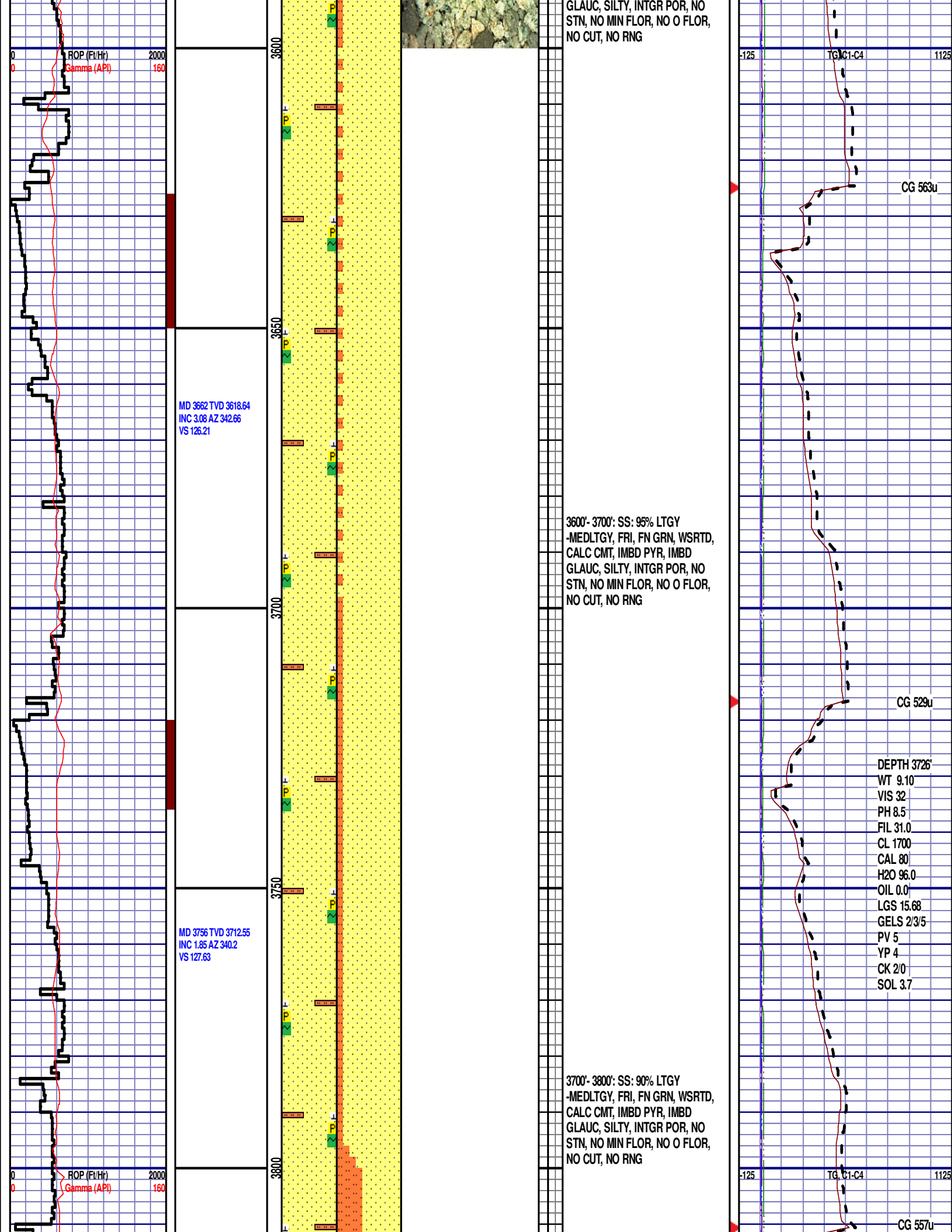
TG, C1-C4

CG 247u



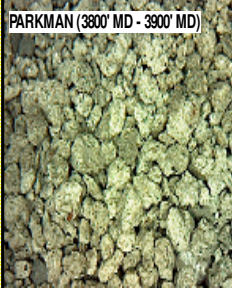






MD 3851 TVD 3807.53
INC 0.53 AZ 271.29
VS 128.65

PARKMAN (3800' MD - 3900' MD)



3800'- 3900': SS: 60% LTGY
-MEDLTGY, FRI, FN GRN, WSRD,
CALC CMT, IMBD PYR, SILTY,
INTGR POR, NO STN, NO MIN
FLOR, NO O FLOR, NO CUT, NO
RNG

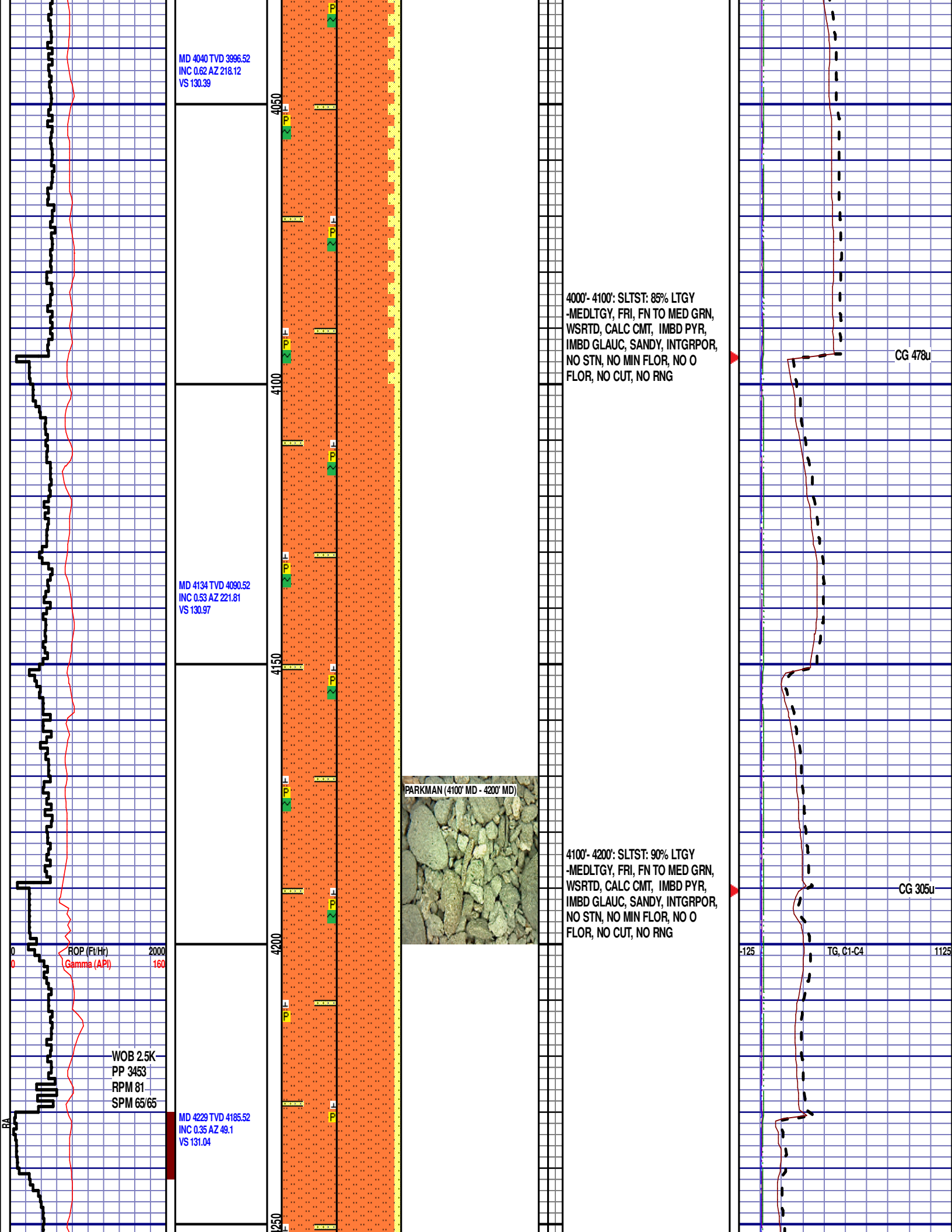
MD 3945 TVD 3901.53
INC 0.62 AZ 263.12
VS 129.59

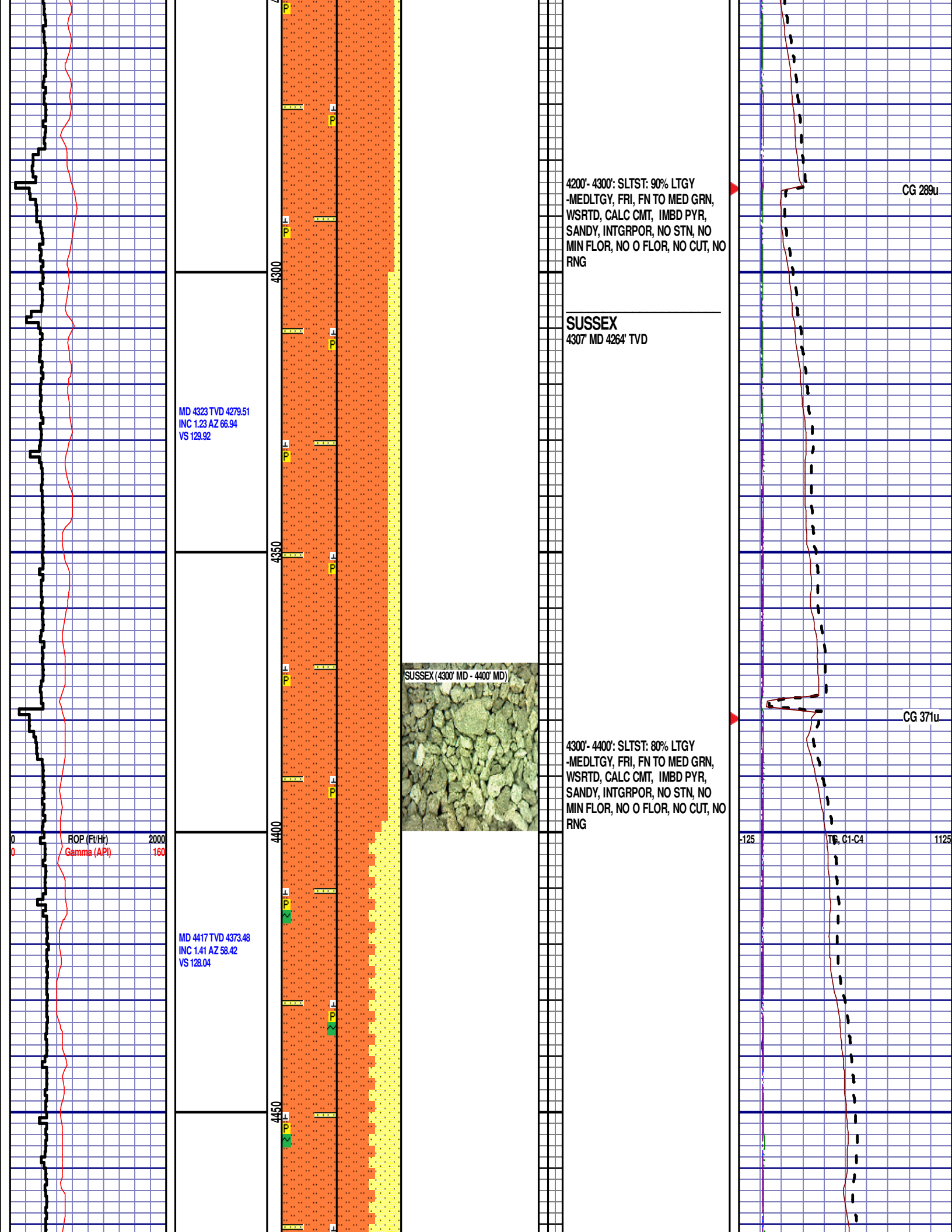
3900'- 4000': SLTST: 80% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRDT, CALC CMT, IMBD PYR,
SANDY, INTGRPOR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

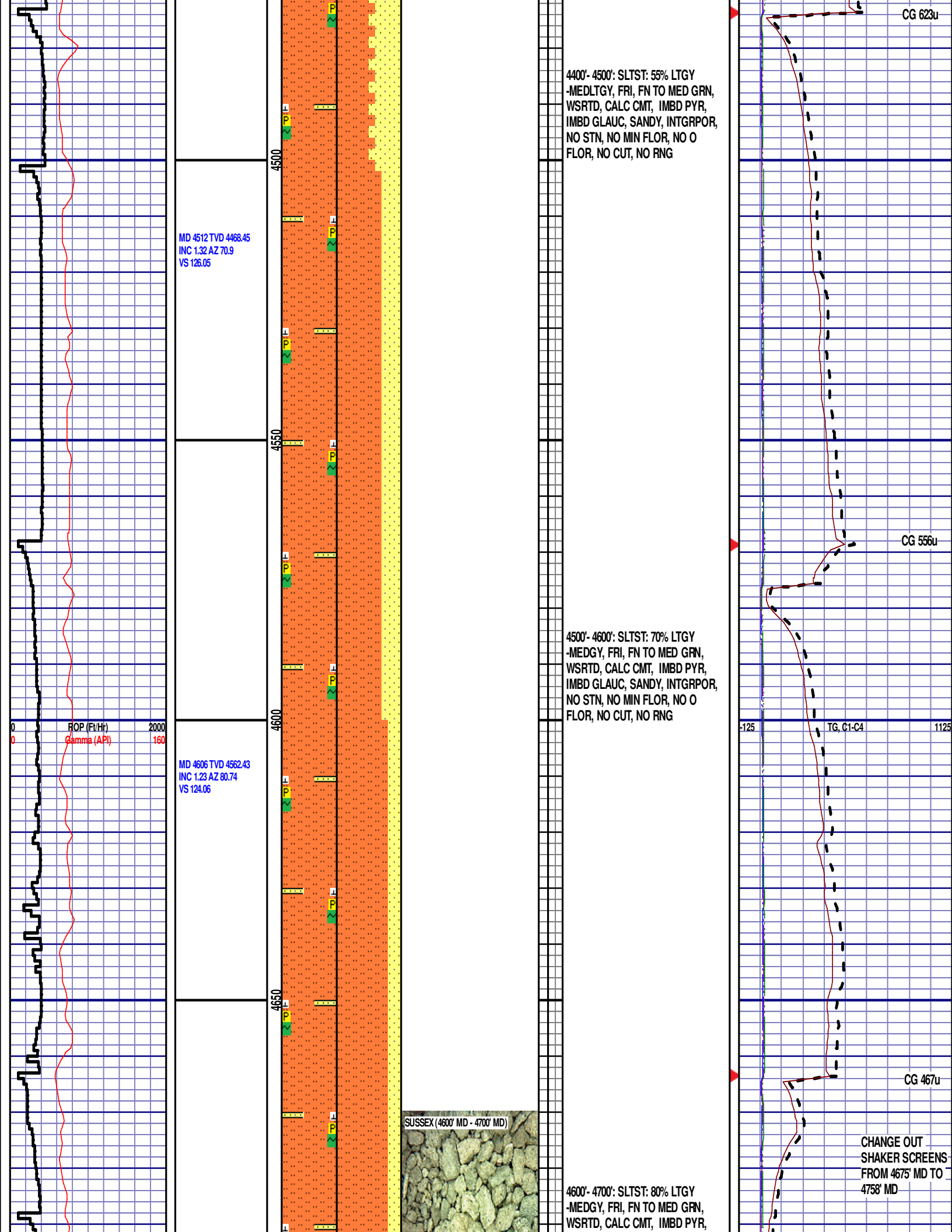
ROP (Ft/Hr) 2000
Gamma (API) 160

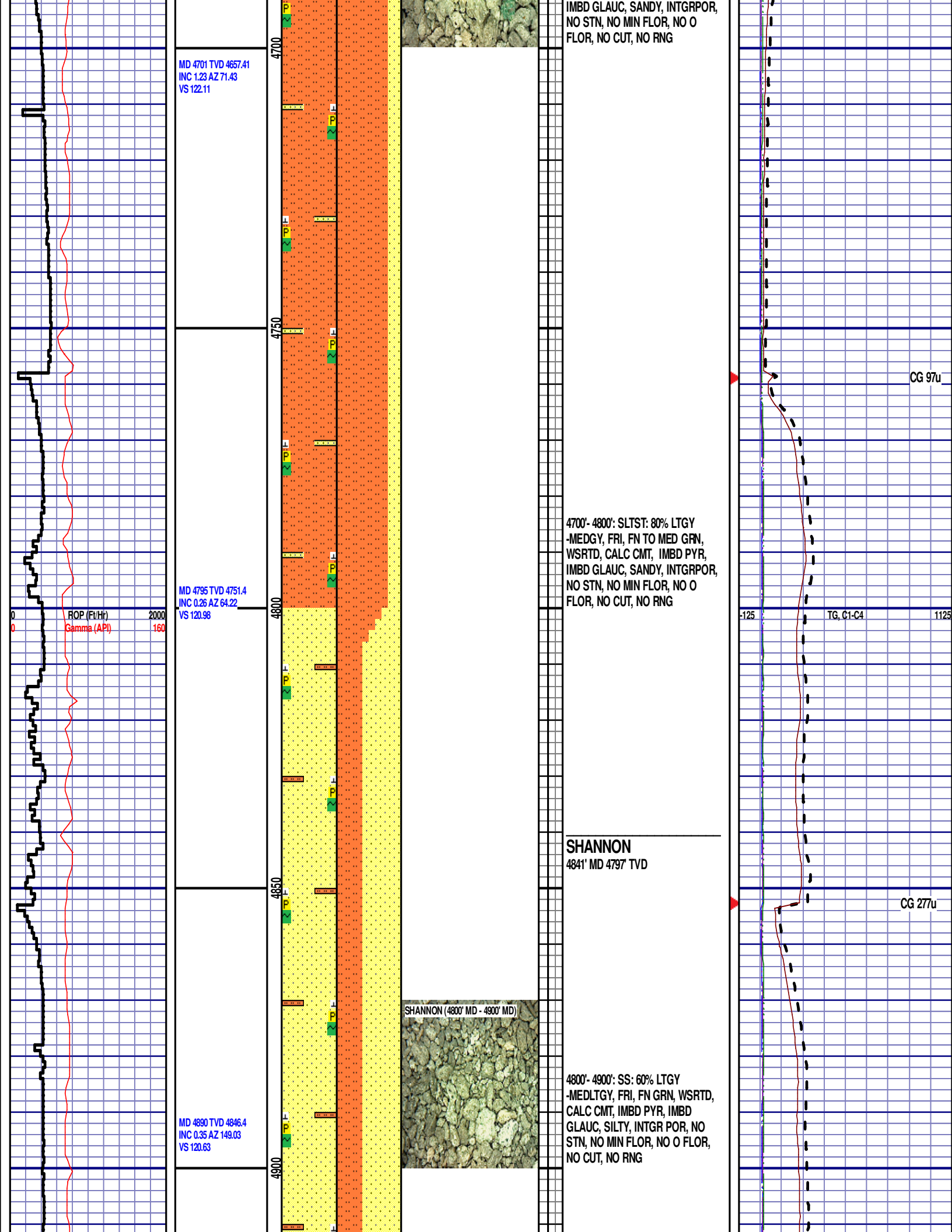
CG 535u

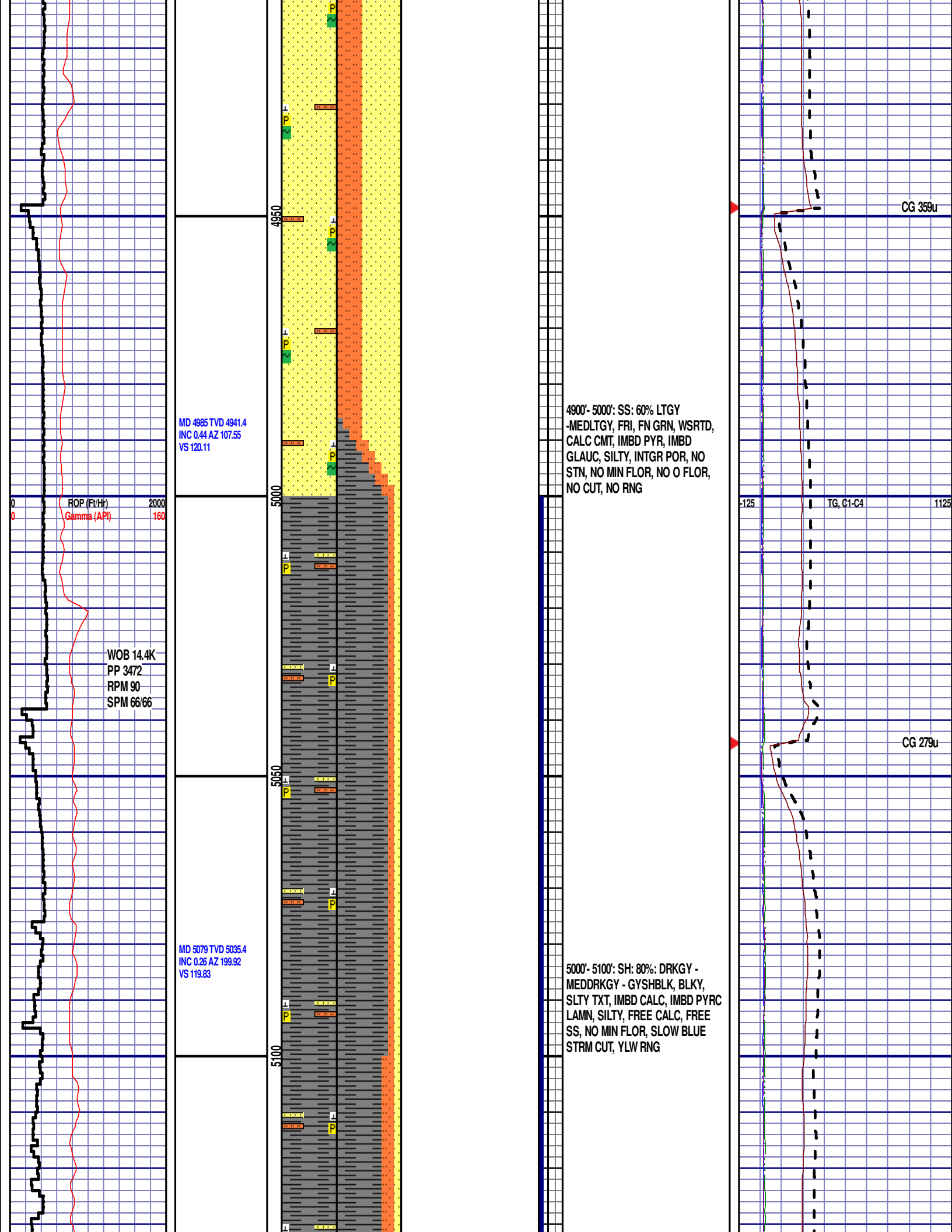
CG 591u 1125

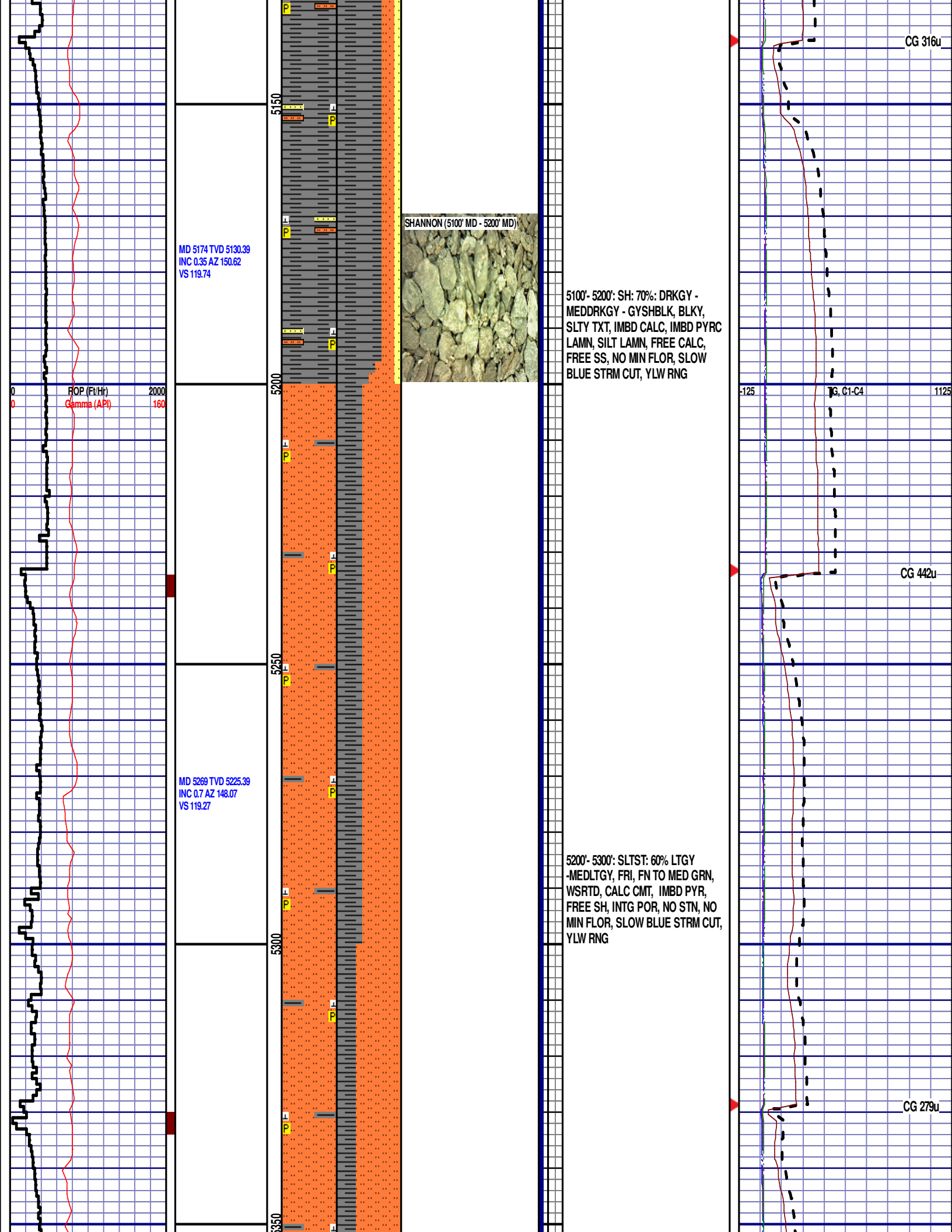












MD 5364 TVD 5320.38
INC 0.62 AZ 132.51
VS 118.55

ROP (Ft/Hr) 2000
Gamma (API) 160

5300'- 5400': SLTST: 70% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
FREE SH, INTG POR, NO STN, NO
MIN FLOR, SLOW BLUE STRM CUT,
YLW RNG

-125 TG, C1-C4 1125

CG 271u

MD 5458 TVD 5414.38
INC 0.88 AZ 159.84
VS 117.88

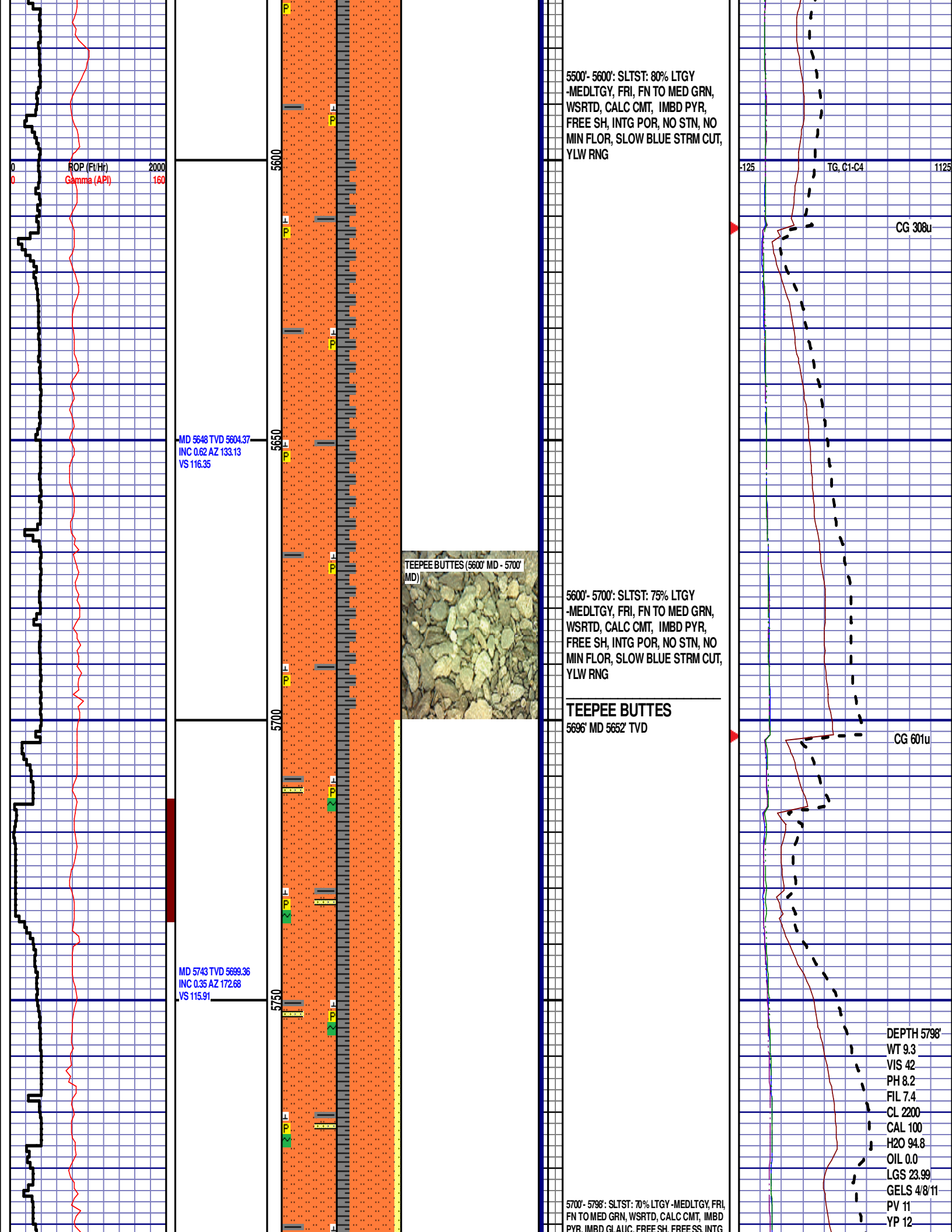
SHANNON (5400' MD - 5500' MD)

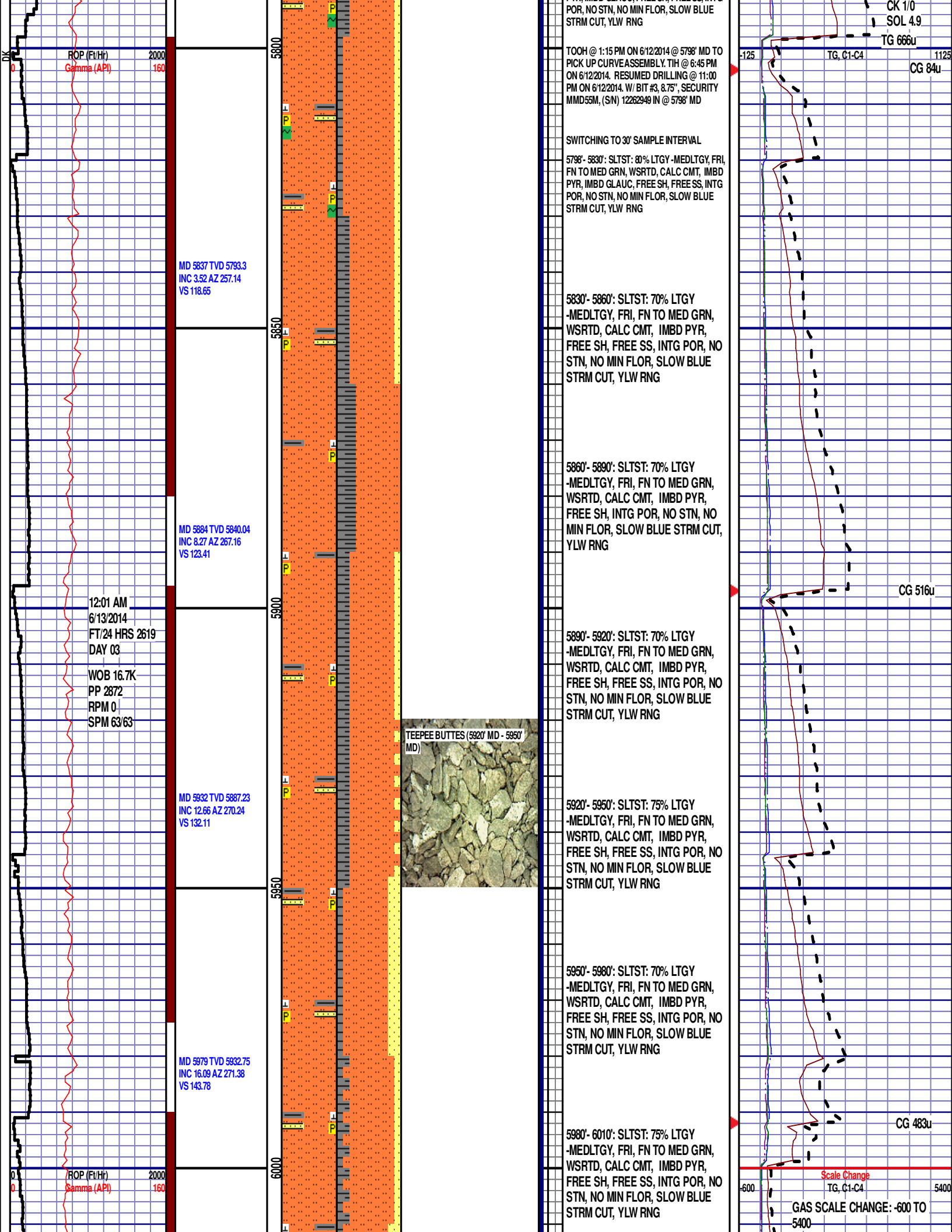


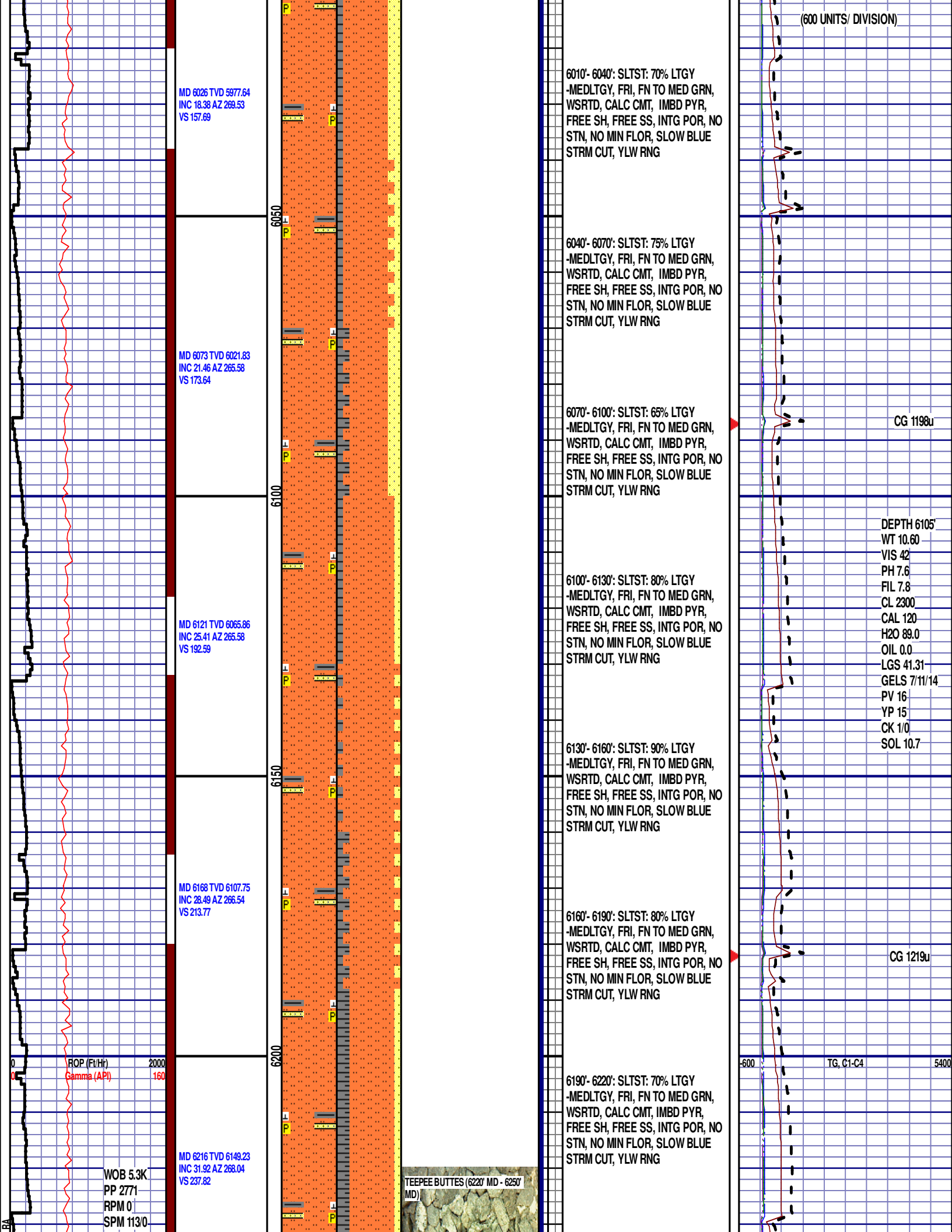
5400'- 5500': SLTST: 75% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
FREE SH, INTG POR, NO STN, NO
MIN FLOR, SLOW BLUE STRM CUT,
YLW RNG

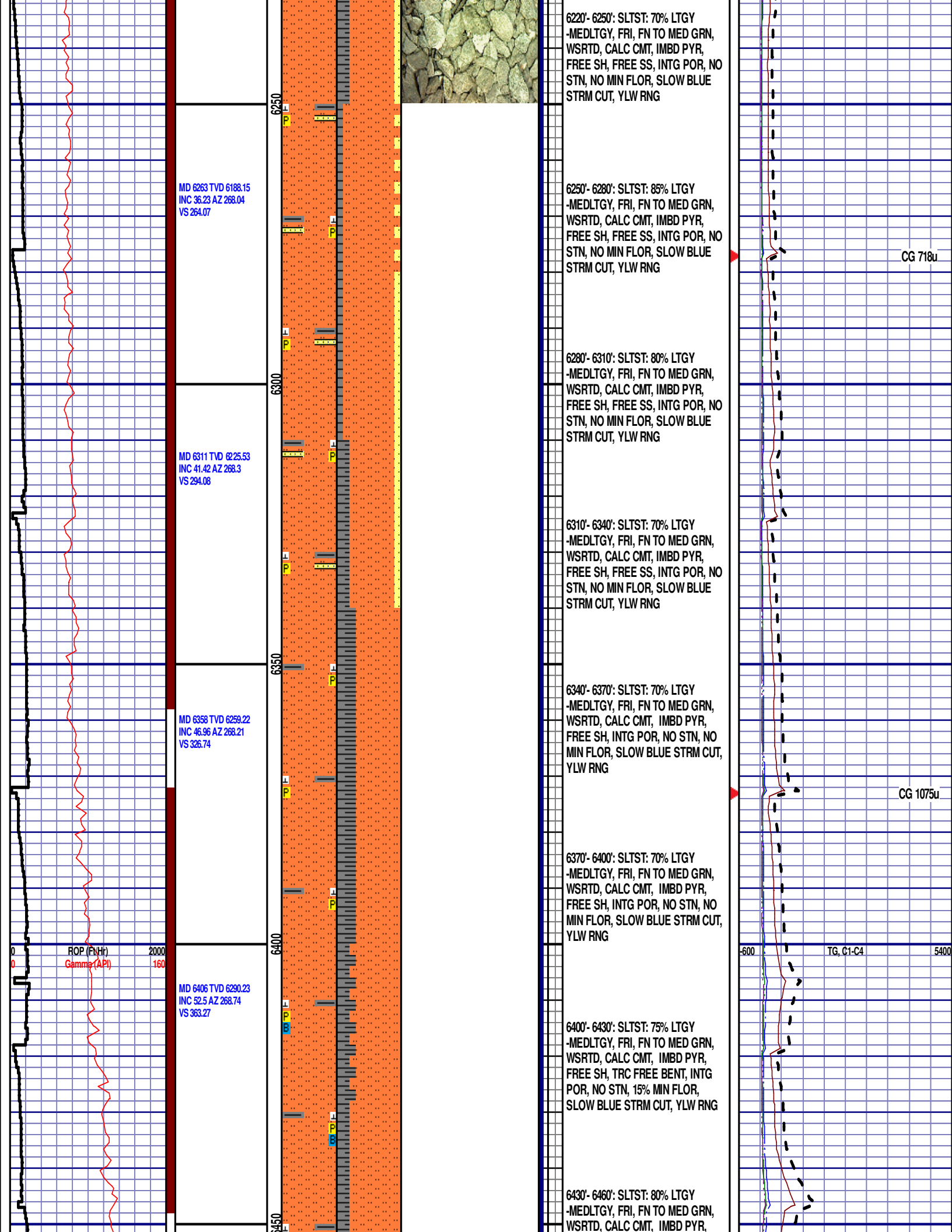
CG 377u

MD 5553 TVD 5509.37
INC 0.53 AZ 81.71
VS 117.17









MD 6453 TVD 6317.68
INC 56.01 AZ 269.27
VS 401.35

MD 6500 TVD 6342.9
INC 59.09 AZ 269.27
VS 440.95

MD 6547 TVD 6365.66
INC 62.96 AZ 268.3
VS 461.98

6500

6550

00

TEEPEE BUTTES (6460' MD - 6490'
MD)

SHARON SPRINGS (6490' MD - 6520'
MD)

FREE SH, TRC FREE BENT, INTG
POR, NO STN, 15% MIN FLOR,
SLOW BLUE STRM CUT, YLW RNG

6460'- 6490': SLTST: 80% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
FREE SH, TRC FREE BENT, INTG
POR, NO STN, 15% MIN FLOR,
SLOW BLUE STRM CUT, YLW RNG

SHARON SPRINGS 6503' MD 6344' TVD

6490'- 6520': SLTST: 70% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
FREE SH, FREE BENT, INTG POR,
NO STN, 20% MIN FLOR, BLUE
STRM CUT, YLW RNG

6520'- 6550': SLTST: 75% LTGY-MEDGY, FRI,
FN TO MED GRN, WSRTD, CALC CMT, IMBD
PYR, SCAT PYR, FREE SH, TRC FREE BENT,
INTG POR, NO STN, 20% MIN FLOR, BLUE
STRM CUT, YLW RNG

END OF VERTICAL LOG @ 6550' MD
ON 6/13/2014, CONTINUED ON
HORIZONTAL LOG.

CG 2206u