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Customer Information

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

Geologist: Henry Badra
Noble Energy Inc.

Mud Logging Details

Logger: Ryan Bleess & Nikki Graber

Log Interval: 2500' MD to 6618' MD

Start Date: May 18, 2012

Release Date: May 25, 2012

Well Information

Well Name: SLW STATE PC BB18-67HN

Location: 18-5N-63W
1732' FNL, 632' FEL

County: Weld
State: Colorado

Drilling Rig: H&P 343

Total Depth: 10895' MD

TD Date: May 24, 2012

Formation: Niobrara

KB Elevation: 4614'

GR Elevation: 4590'

API Number: 05-123-34679

ROCK TYPES

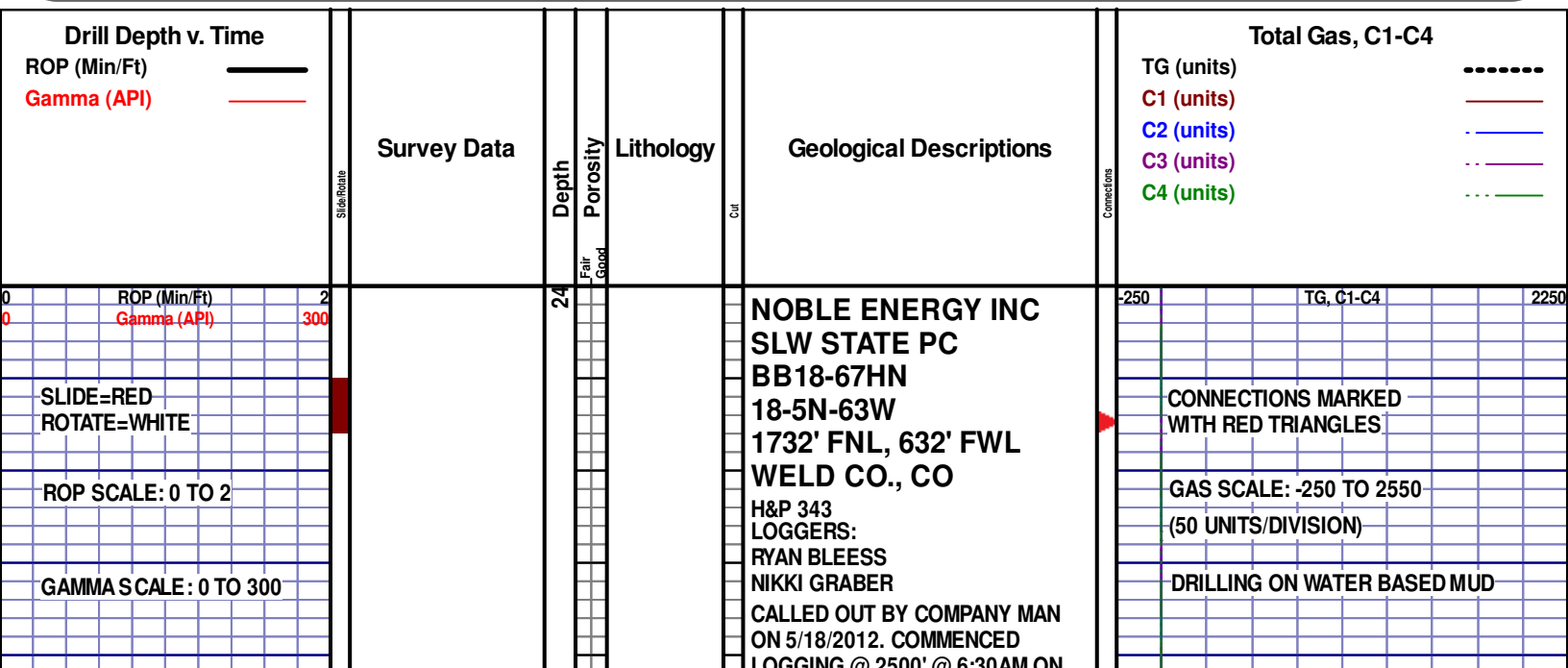
Anhy
Bent
Brec
Cht
Clyst
Coal
Congl

Dol
Gyp
Igne
Chk
Lmst
Meta
Mrlst

Salt
Shale
Shcol
Shgy
Sltst
Ss
Till

gw
lmywash
ogw
olmywash
oshly gw
shly gw
sdygw

hvyrcbsh
nosmpl
Lsdetrst
sltst
sdy sh
Cement



LOGGING @ 2500 @ 0.50AM ON
5/20/12 W/ BIT #2 8.75" SECURITY
TYPE FDX55 IN @ 585" MD

WOB 22.8K
PP 2913
RPM 40
SPM 67/67

MD 2506 TVD 2496.72
Az 321.08° Inc 10.81°
VS 63.98

SILTSTN; GRY TO DK GRY, CGR,
SUB-ANG, OPA, BRITTLE,
P/CONSOL, P/SORT, CALC CMNT,
POOR INTRGRAN POR, NO FLUOR,
NO STRM CUT, NO CUT AFTER
CRUSH, NO RING CUT, NO VIS
STAIN, SME SS

SILTSTN; GRY TO DK GRY, CGR,
SUB-ANG, OPA, BRITTLE,
P/CONSOL, P/SORT, CALC CMNT,
POOR INTRGRAN POR, NO FLUOR,
NO STRM CUT, NO CUT AFTER
CRUSH, NO RING CUT, NO VIS
STAIN, SME SS

SILTSTN; GRY TO DK GRY, CGR,
SUB-ANG, OPA, BRITTLE,
P/CONSOL, P/SORT, CALC CMNT,
POOR INTRGRAN POR, NO FLUOR,
NO STRM CUT, NO CUT AFTER
CRUSH, NO RING CUT, NO VIS
STAIN, SME SS

SS; LT GRY TO GRY, F TO MGR,
SUB-ANG, FROST, BRITTLE,
M/CONSOL, M/SORT, CALC CMNT,
INTRGRAN POR, NO STRM CUT,
NO CUT AFTER CRUSH, SME
SILTSTN

MD 2011
WT 9.0
VIS 28
PH 9.0
FIL 55.0
CL 2500
CAL 168
H2O 97.3
OIL 0.0
SOL 2.4
GELS 2/3/4
PV 2
YP 3

CG 409u

TG, C1-C4

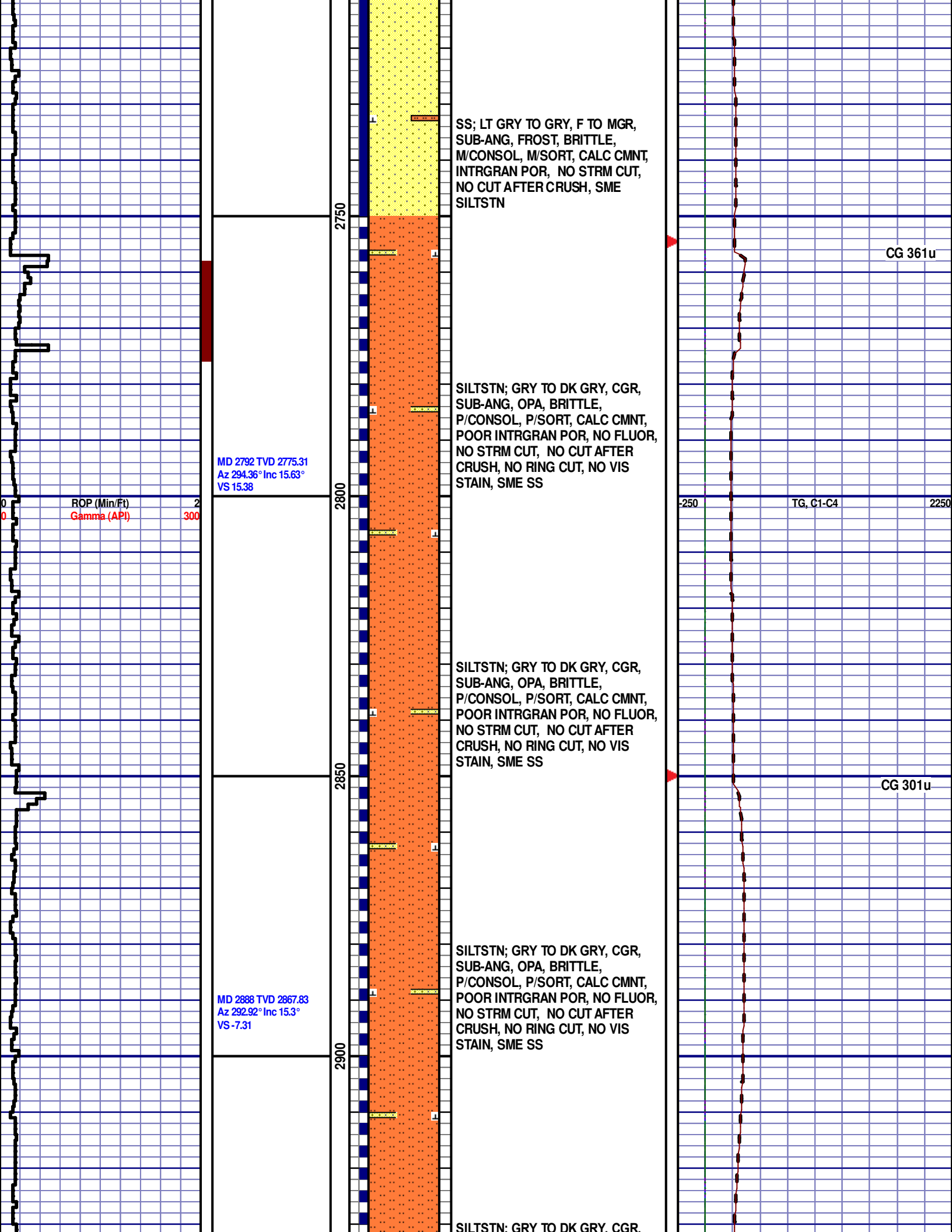
CG 350u

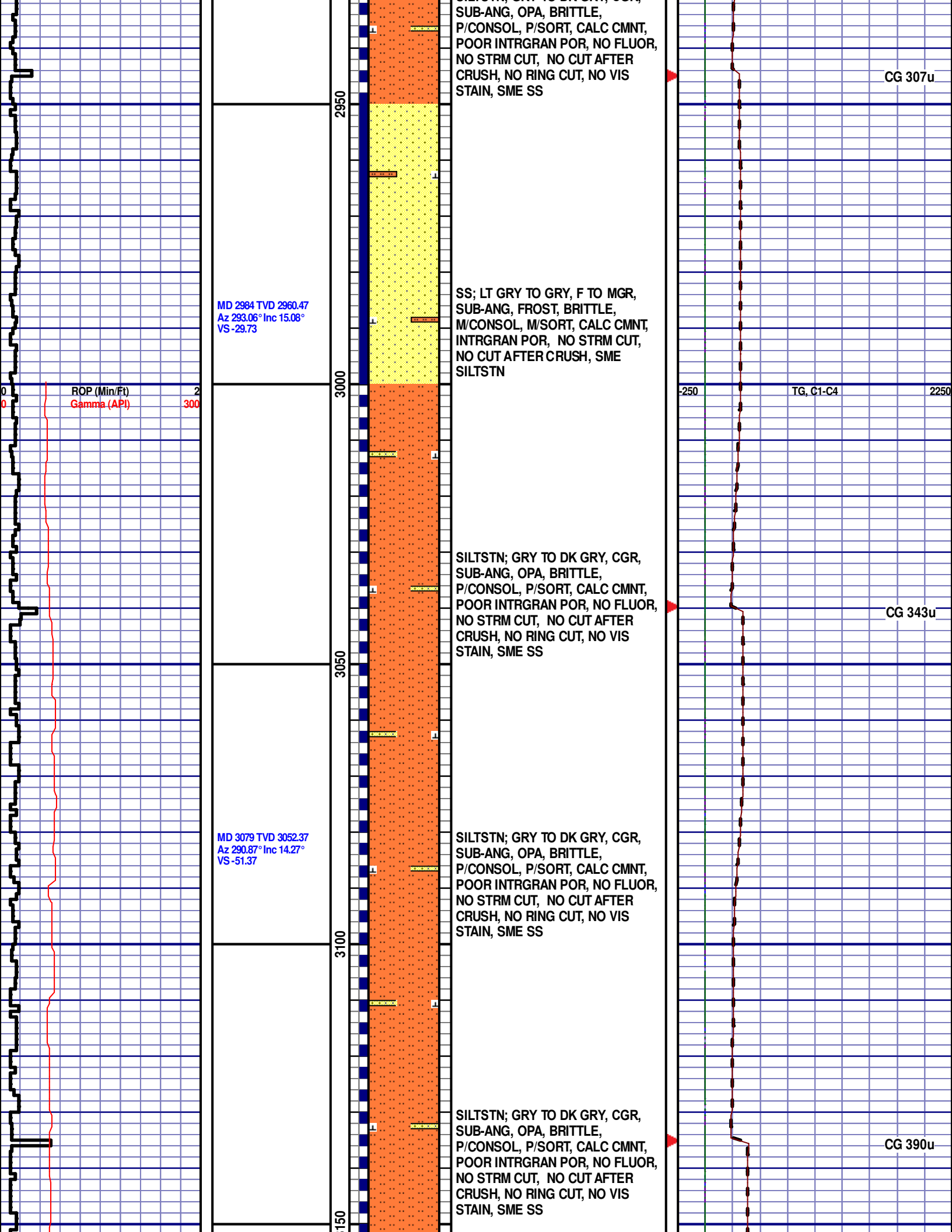
ROP (Min/Ft)
Gamma (API)

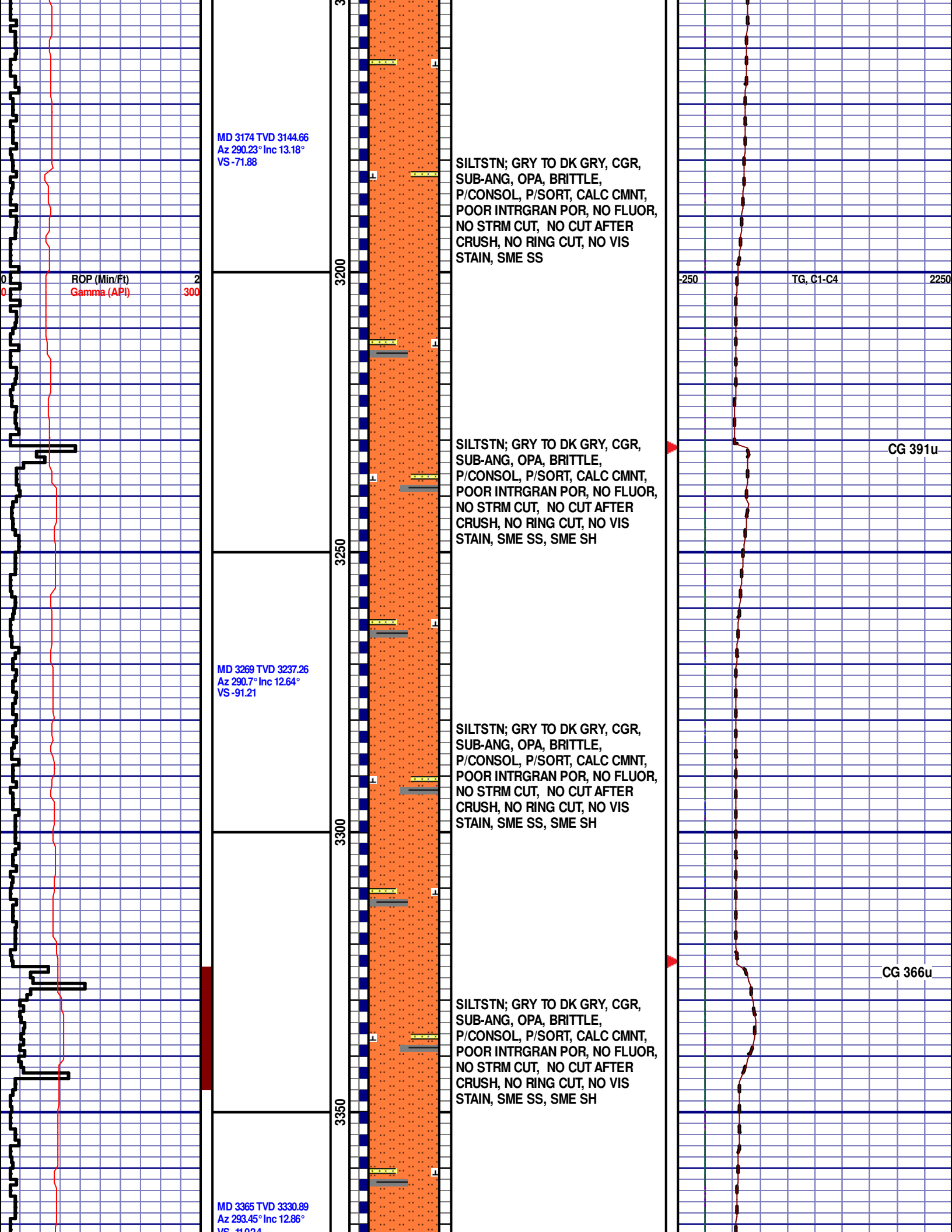
2
300

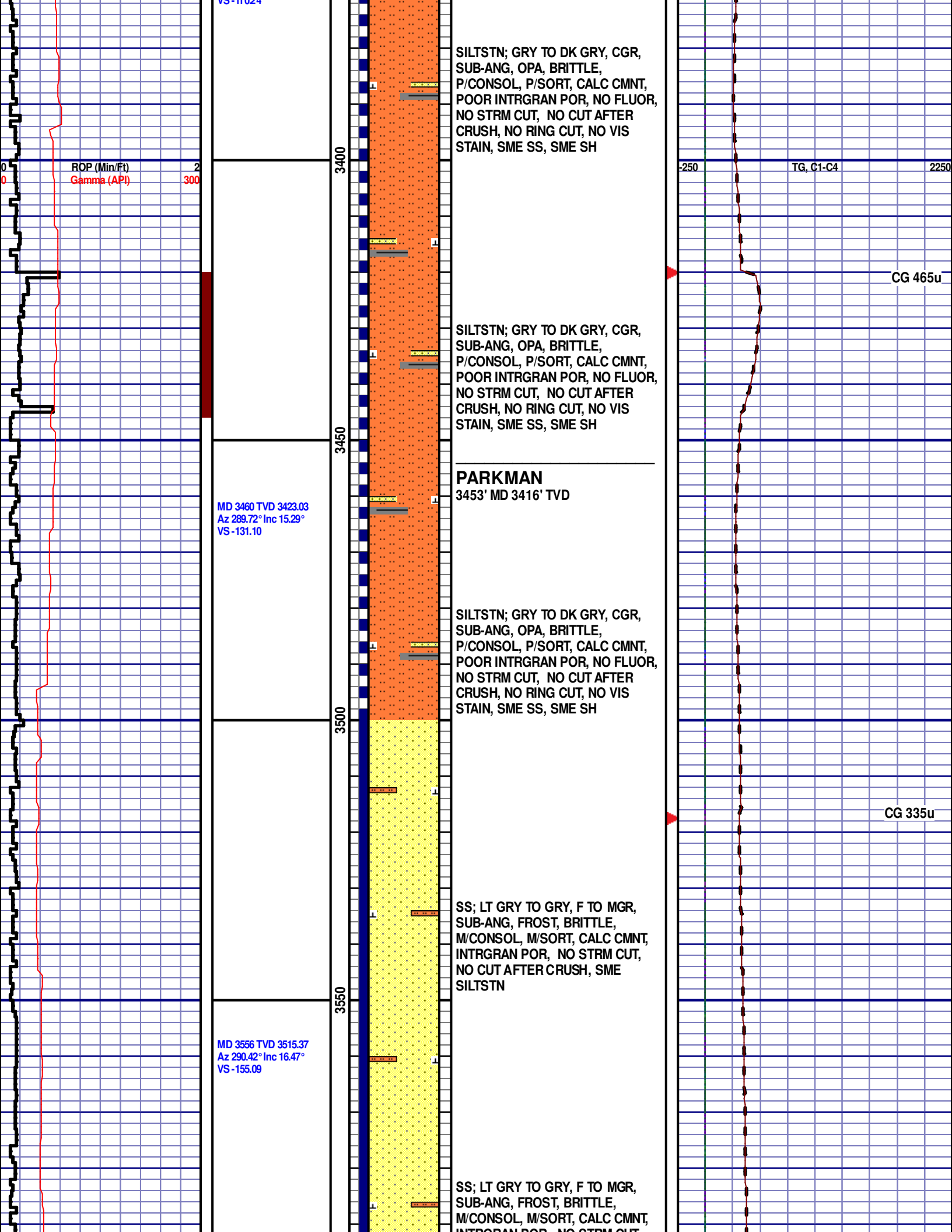
MD 2601 TVD 2589.83
Az 311.93° Inc 12.1°
VS 51.94

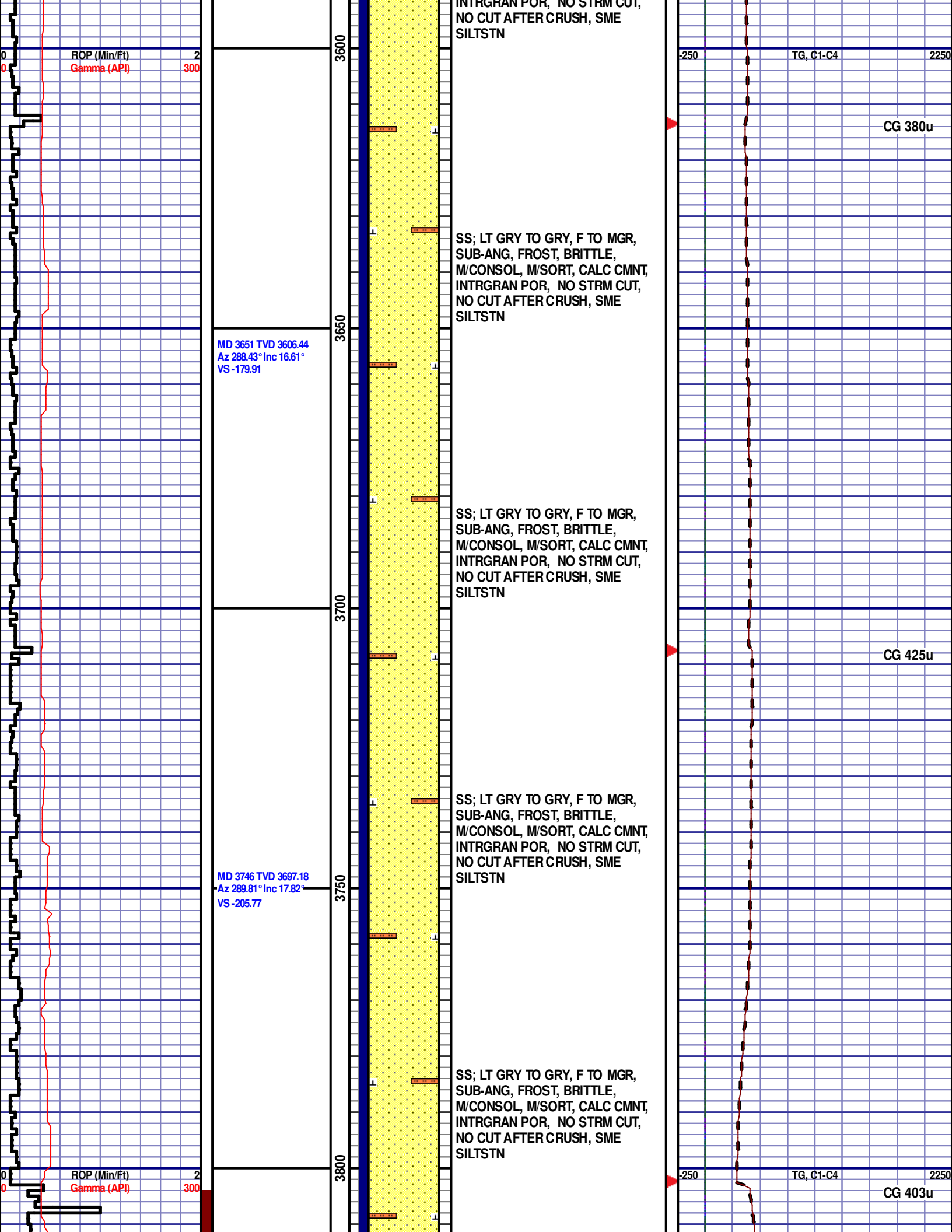
MD 2697 TVD 2683.41
Az 302.44° Inc 13.76°
VS 35.74

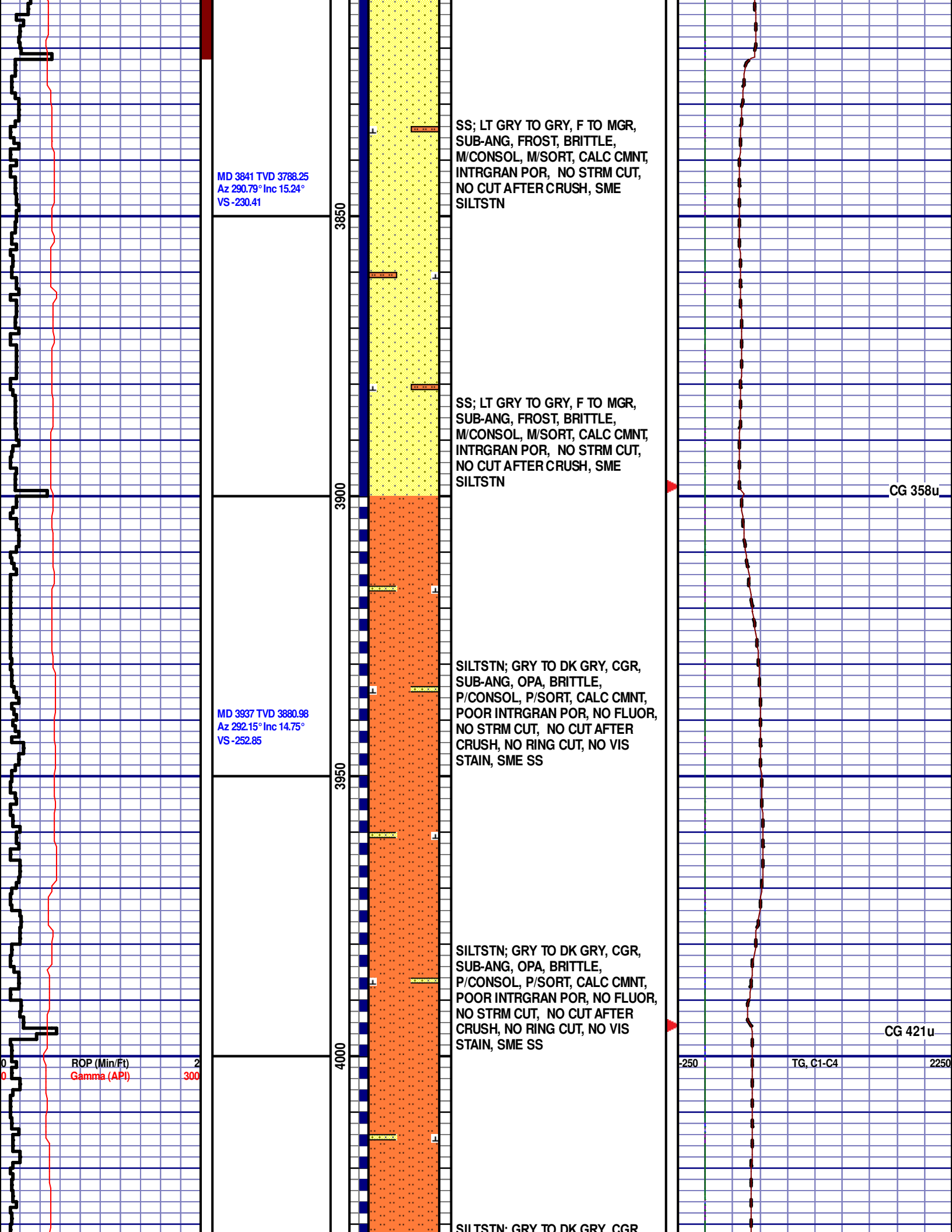


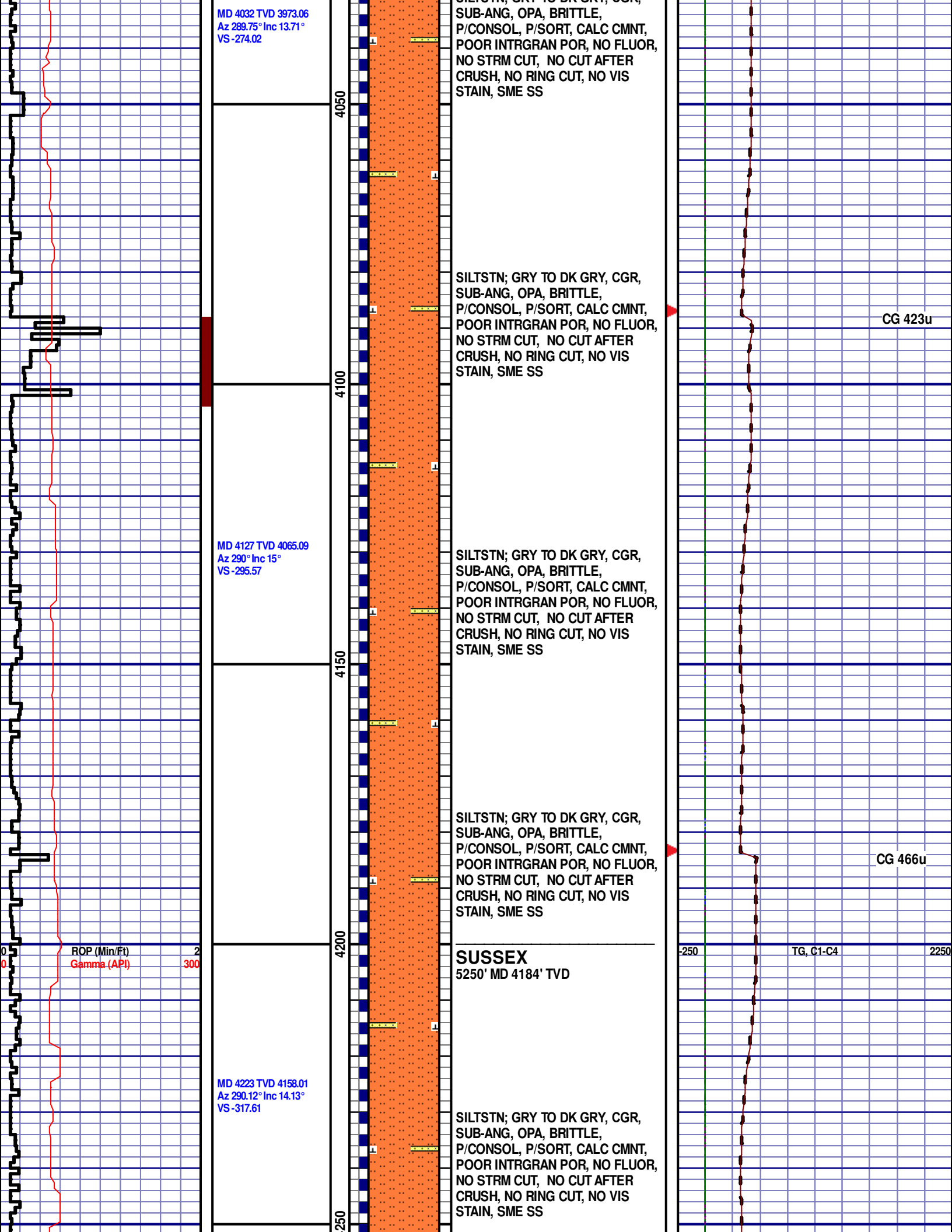


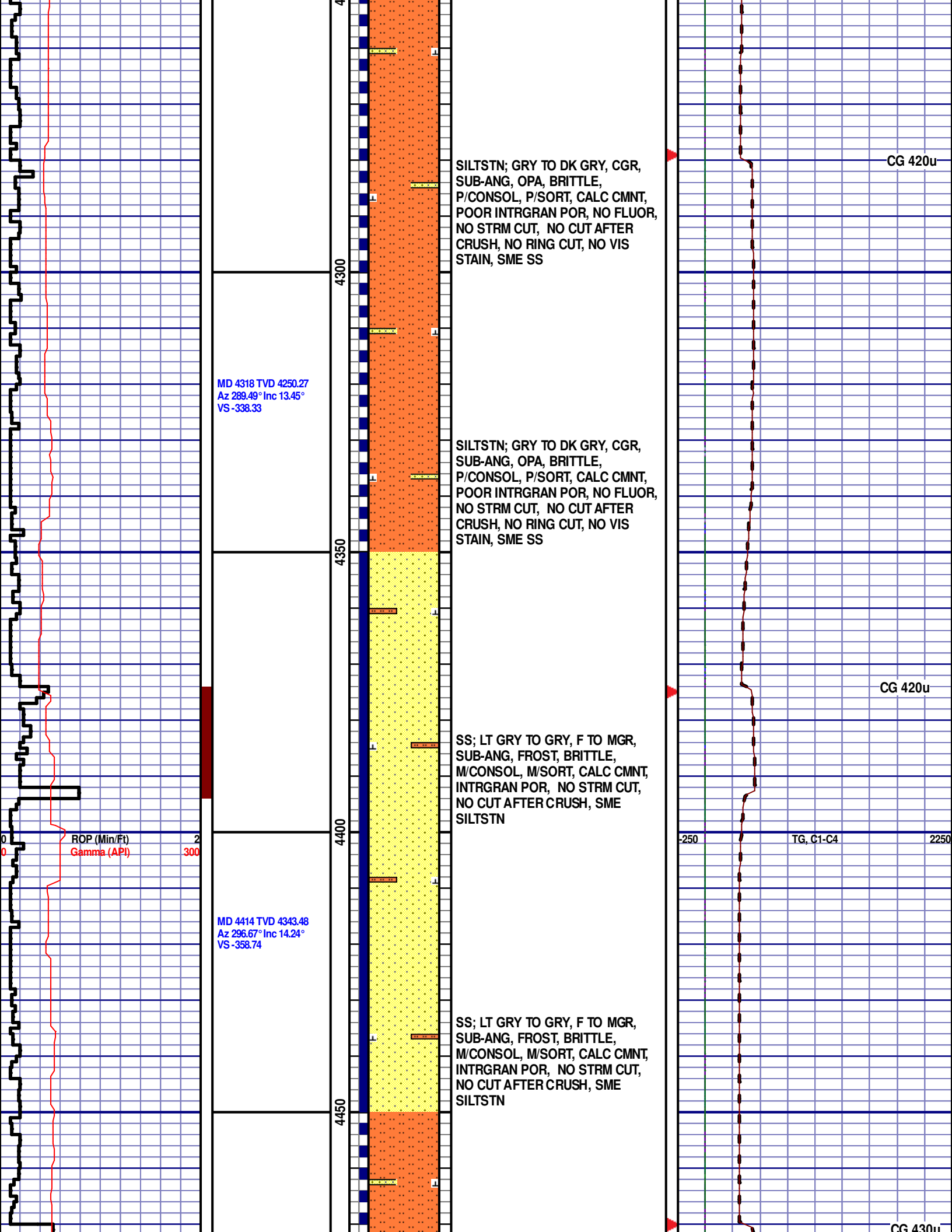


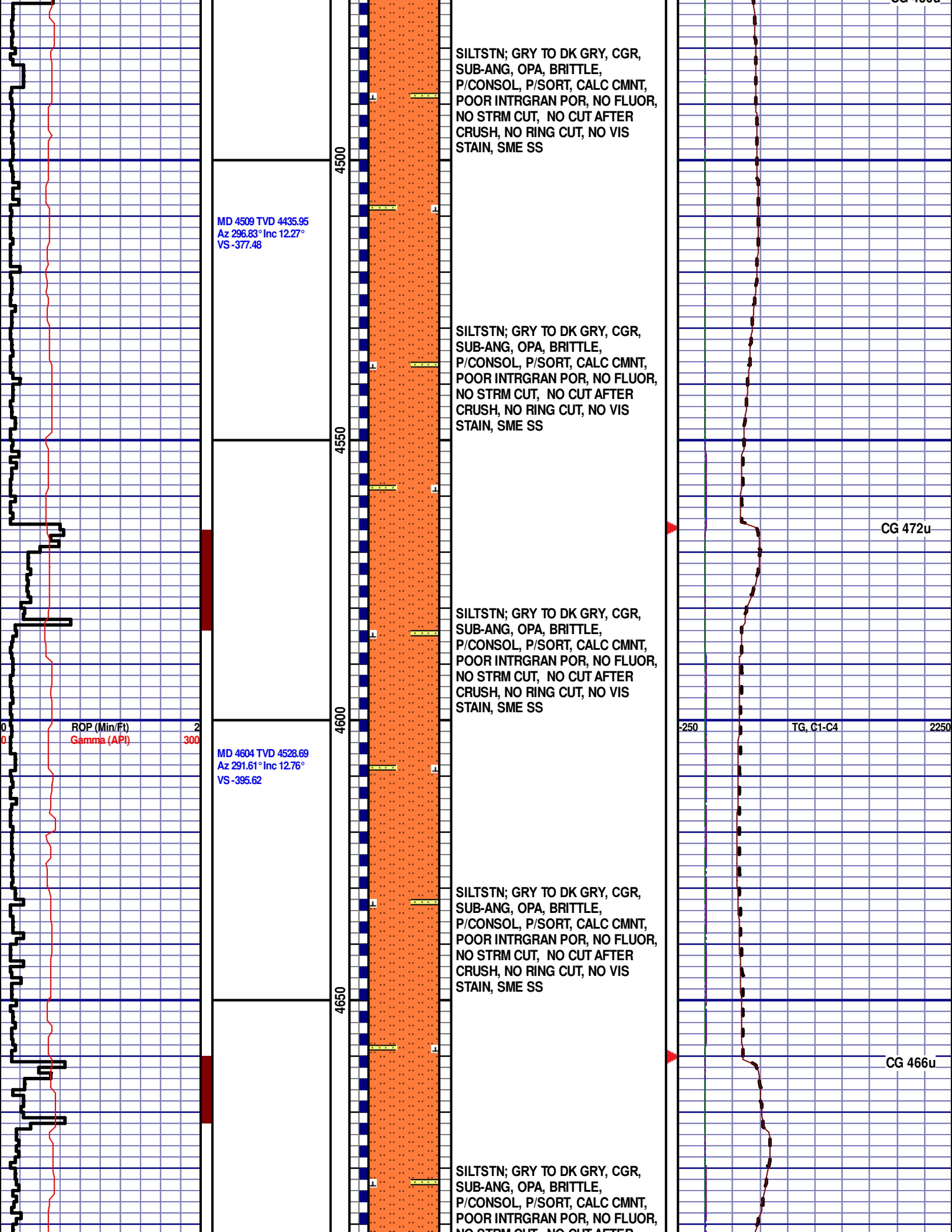


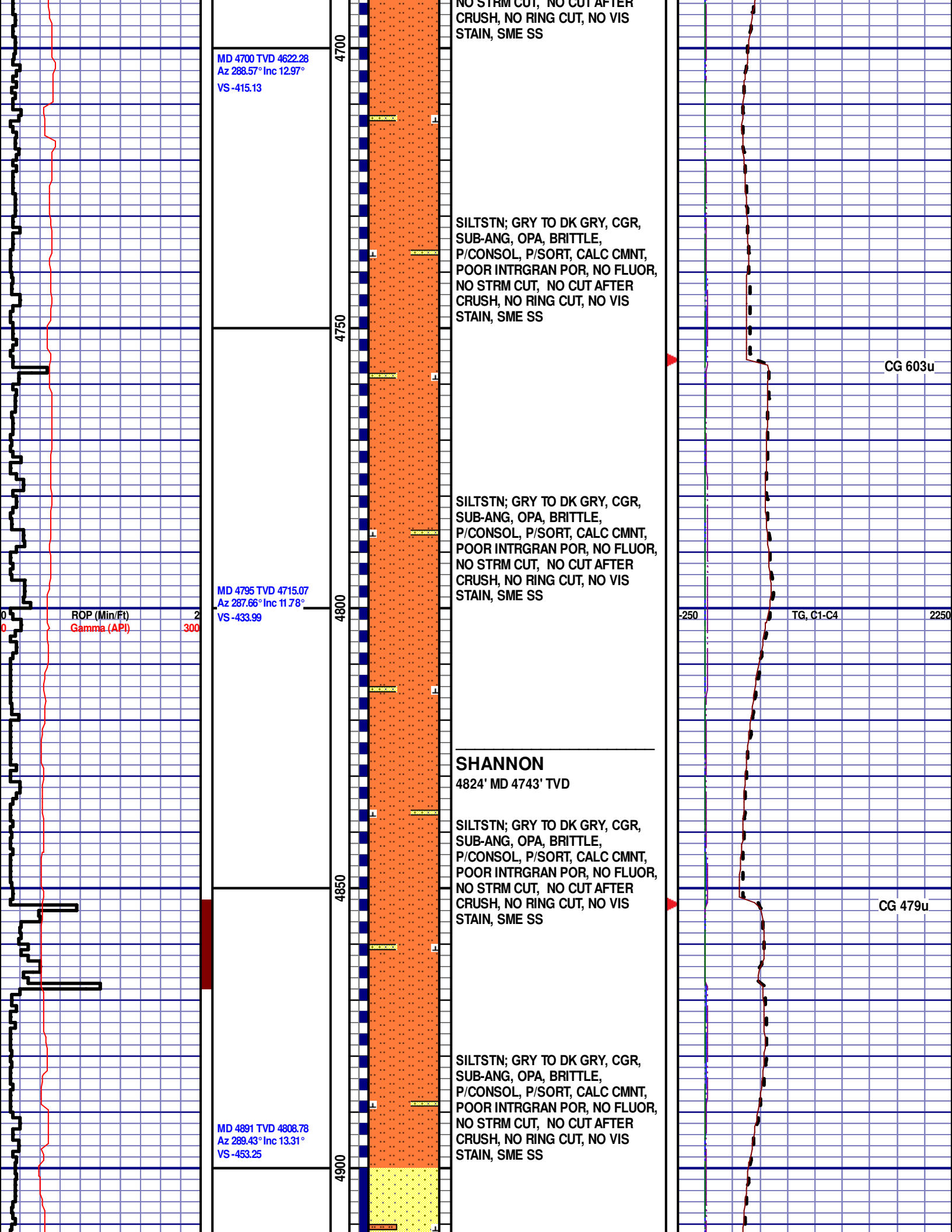


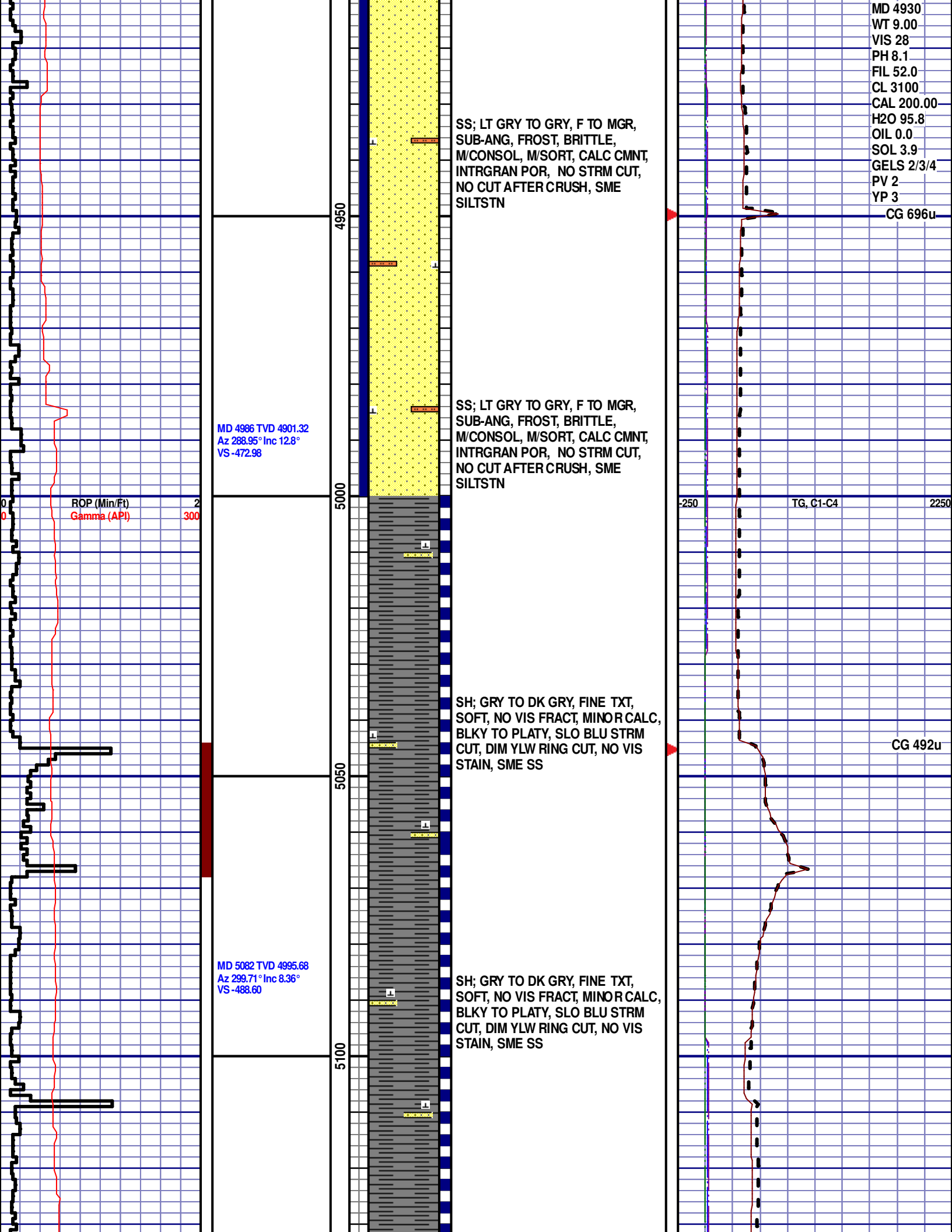


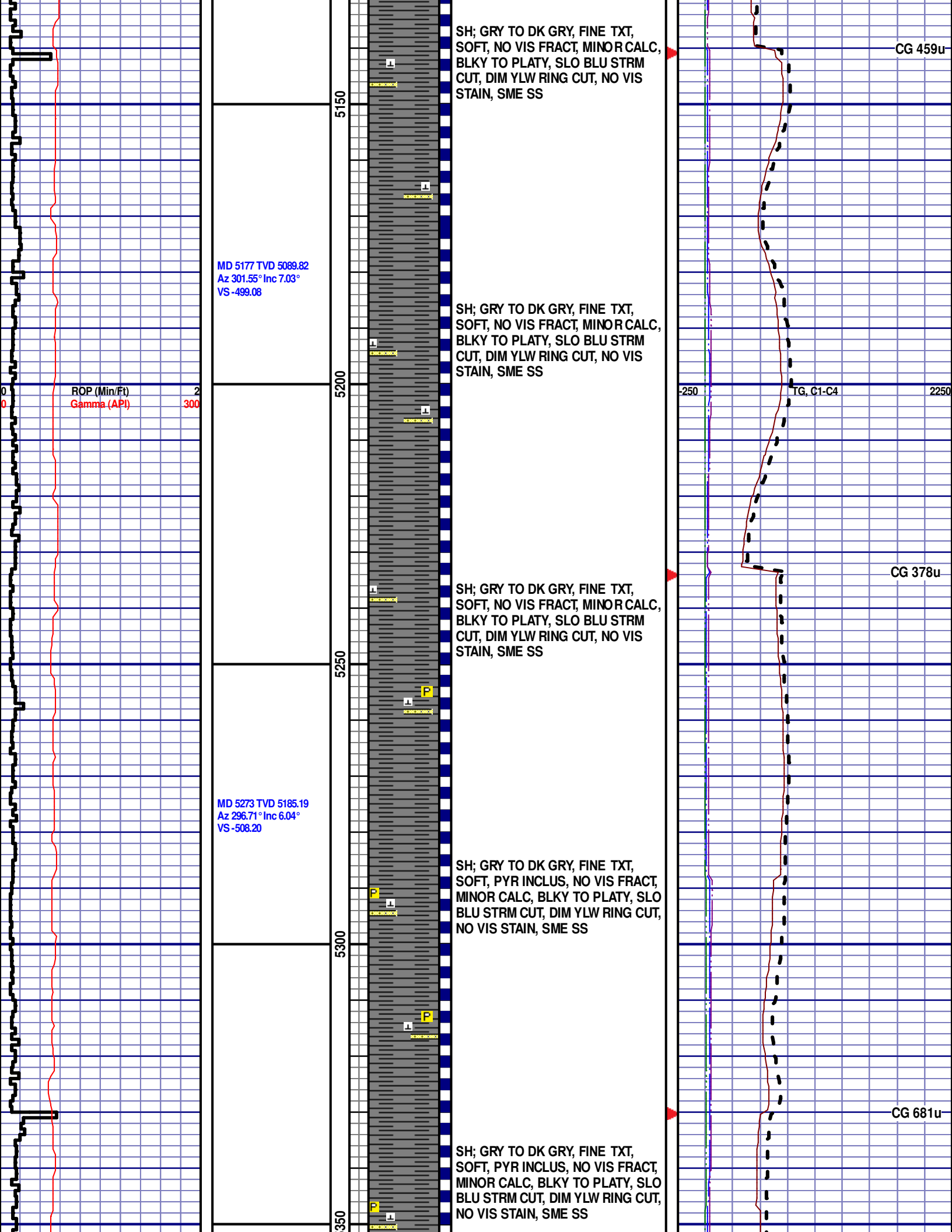


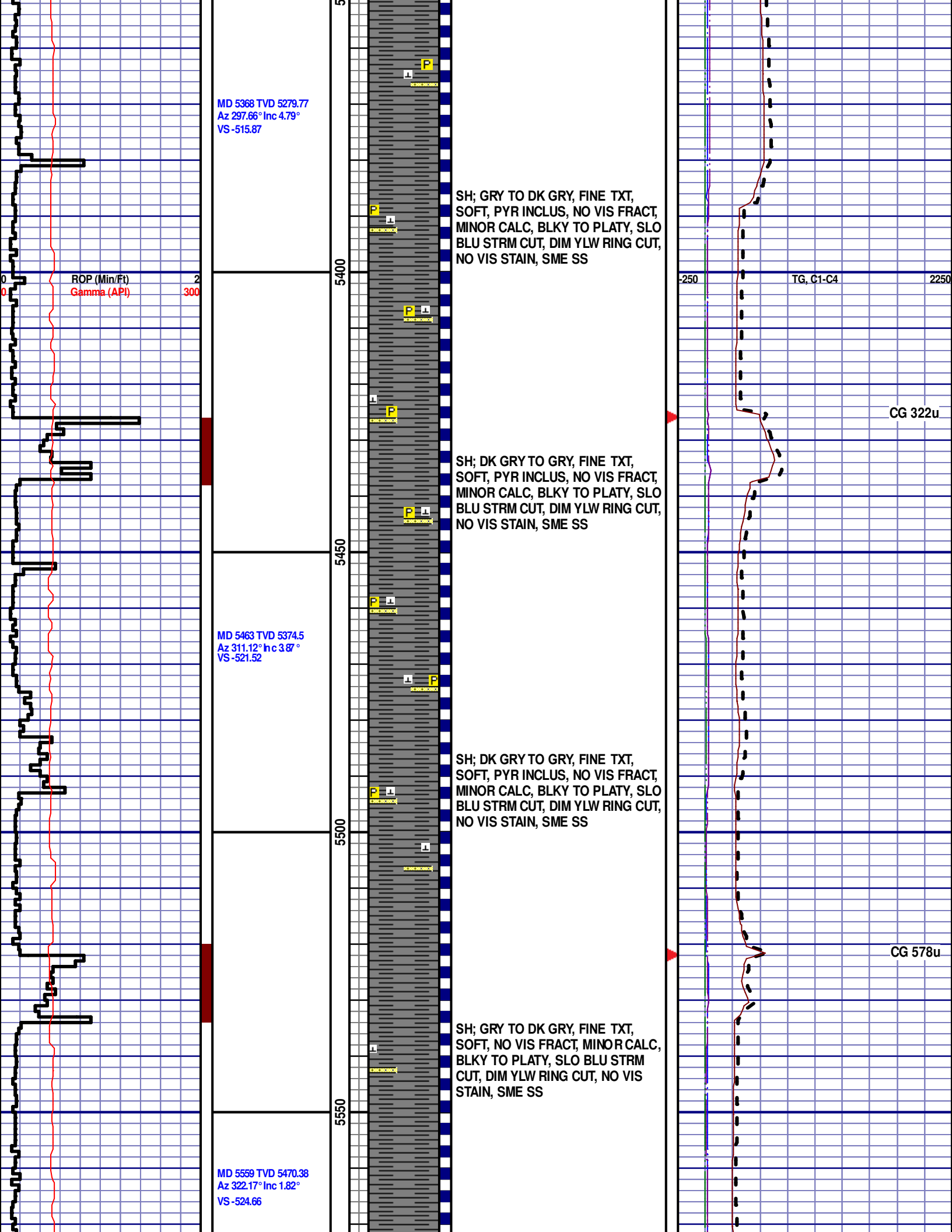


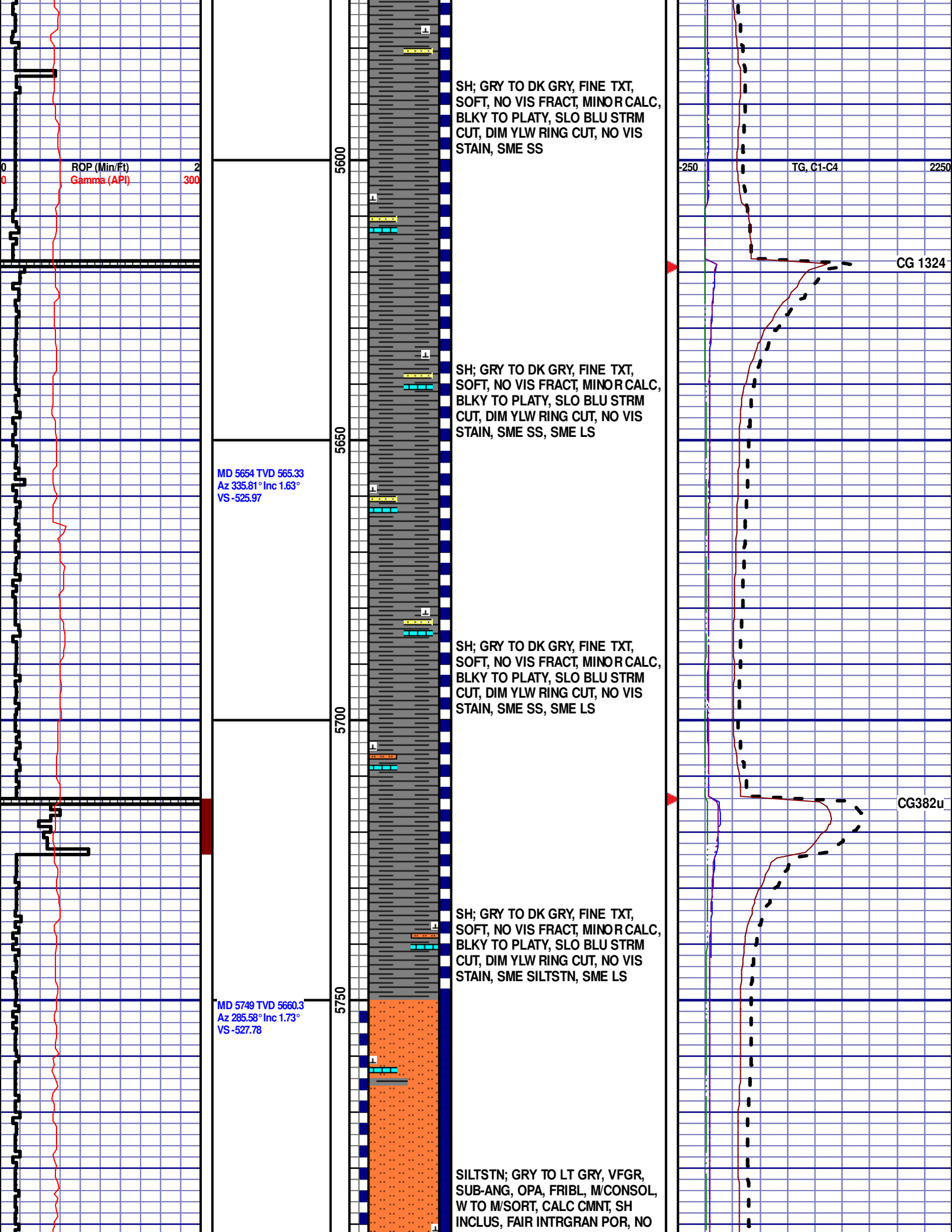


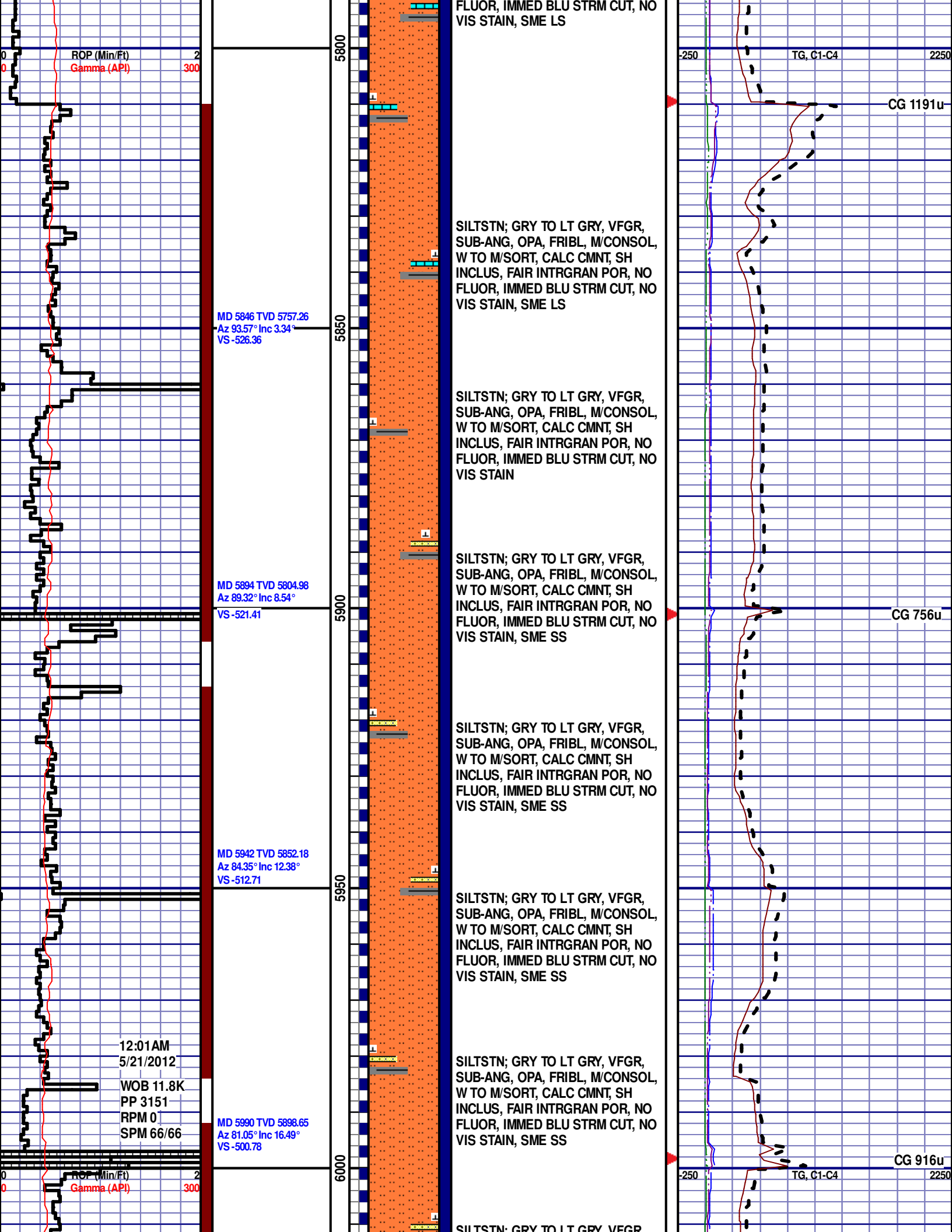


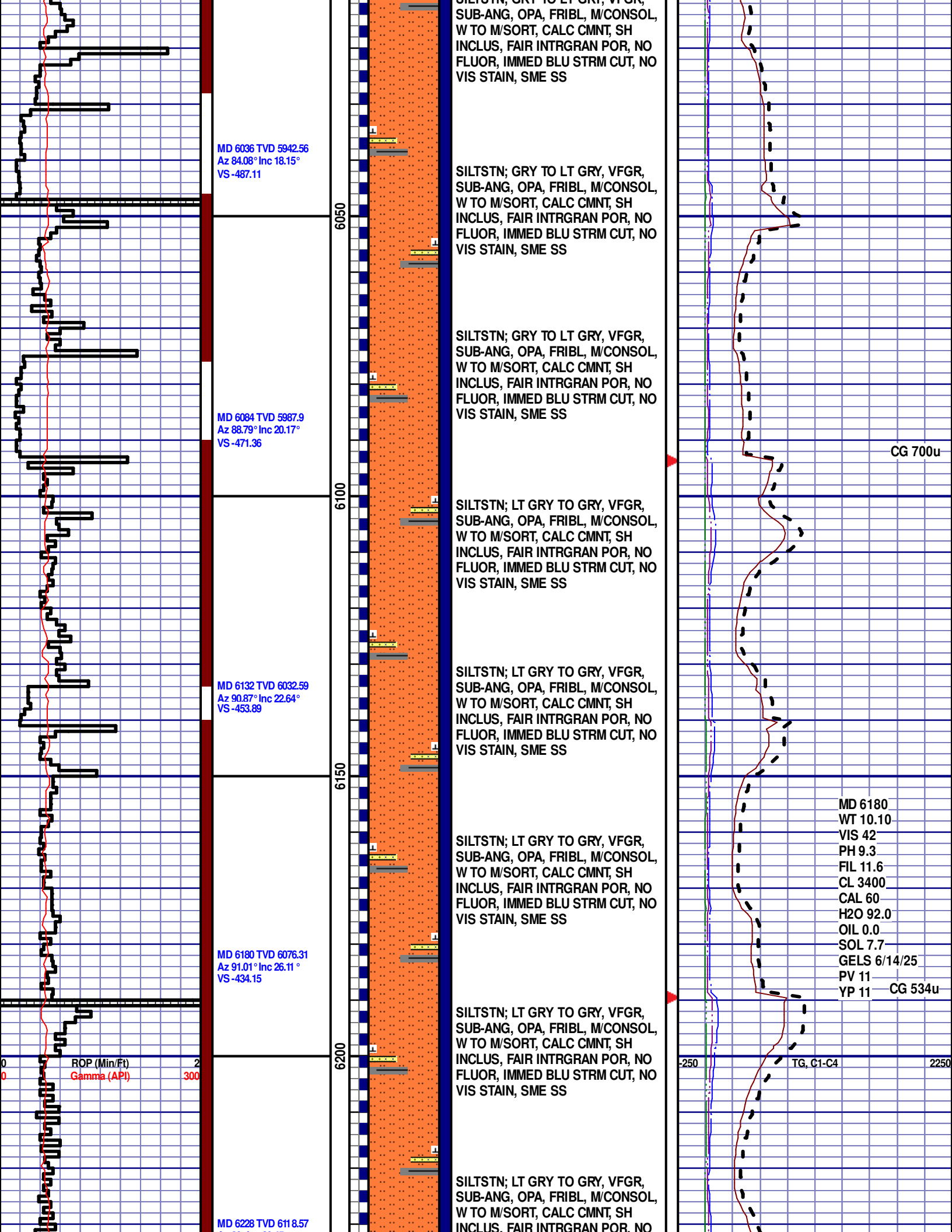


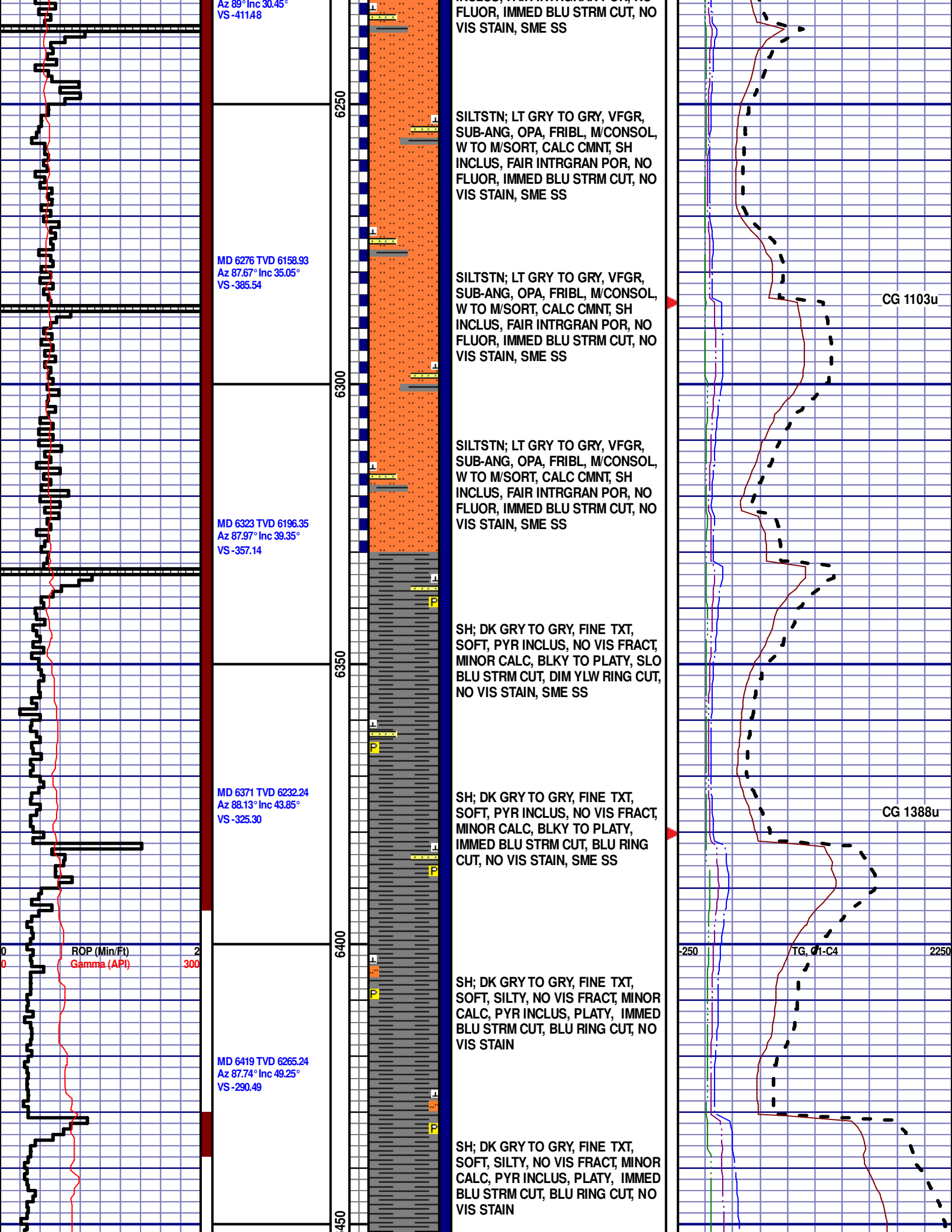


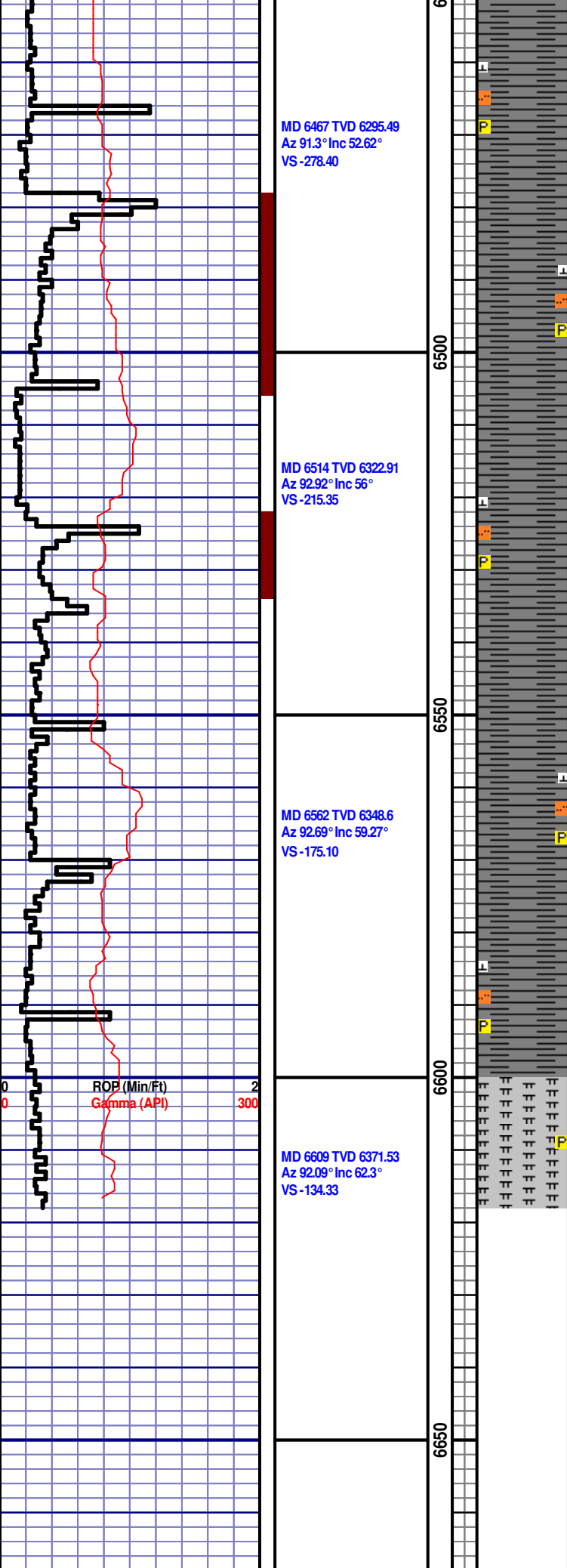












MD 6467 TVD 6295.49
Az 91.3° Inc 52.62°
VS -278.40

MD 6514 TVD 6322.91
Az 92.92° Inc 56°
VS -215.35

MD 6562 TVD 6348.6
Az 92.69° Inc 59.27°
VS -175.10

MD 6609 TVD 6371.53
Az 92.09° Inc 62.3°
VS -134.33

SH; DK GRY TO GRY, FINE TXT,
SOFT, SILTY, NO VIS FRACT, MINOR
CALC, PYR INCLUS, PLATY, IMMED
BLU STRM CUT, BLU RING CUT, NO
VIS STAIN

SH; DK GRY TO GRY, FINE TXT,
SOFT, SILTY, NO VIS FRACT, MINOR
CALC, PYR INCLUS, PLATY, IMMED
BLU STRM CUT, BLU RING CUT, NO
VIS STAIN

SHARON SPRINGS

6510' MD 6320' TVD

SH; DK GRY TO GRY, FINE TXT,
SOFT, SILTY, NO VIS FRACT, MINOR
CALC, PYR INCLUS, PLATY, IMMED
BLU STRM CUT, BLU RING CUT, NO
VIS STAIN

NIOBRARA

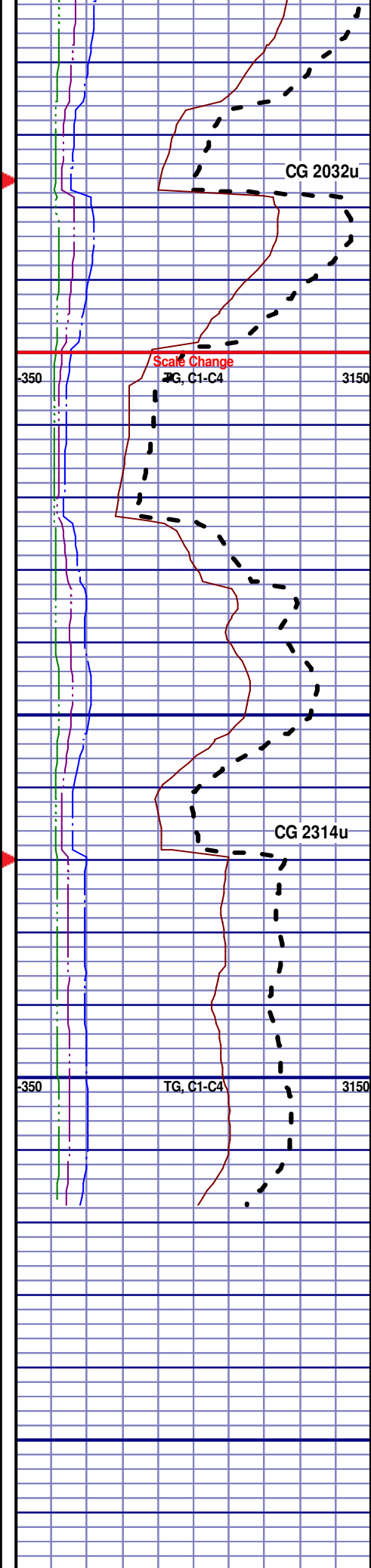
6560' MD 6346' TVD

SH; DK GRY TO GRY, FINE TXT,
SOFT, SILTY, NO VIS FRACT, MINOR
CALC, PYR INCLUS, PLATY, IMMED
BLU STRM CUT, BLU RING CUT, NO
VIS STAIN

SH; DK GRY TO GRY, FINE TXT,
SOFT, SILTY, NO VIS FRACT, MINOR
CALC, PYR INCLUS, PLATY, IMMED
BLU STRM CUT, BLU RING CUT, NO
VIS STAIN

MRL; 45%; GRY TO LT GRY, SOFT
TO BRITTLE, PYR INCLUS, NO VIS
FRACT, POOR INTRXLN POR, NO
FLUOR, IMMED BLU STRM CUT,
BLU RING CUT, NO VIS STAIN

END OF VERTICAL LOG AT 6618'
MD ON 5/21/2012, CONTINUED ON
HORIZONTAL LOG



CG 2032u

Scale Change

TG, C1-C4

3150

CG 2314u

TG, C1-C4

3150