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Customer Information

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

Geologist: Holly Sell
Noble Energy Inc.

Mud Logging Details

Logger: Alec Walker
Marina Lee

Log Interval: 2500' MD to 6900' MD
Start Date: January 10, 2013
Release Date: January 19, 2013

Well Information

Well Name: Wells Ranch State USX
AA16-68-1HNL

Location: 16-6N-63W
577' FNL, 240' FWL

County: Weld
State: Colorado

Drilling Rig: H&P 343
Total Depth: 14955' MD
TD Date: January 18, 2013
Formation: Niobrara C Chalk
KB Elevation: 4803'
GR Elevation: 4779'
API Number: 05-123-36183

ROCK TYPES

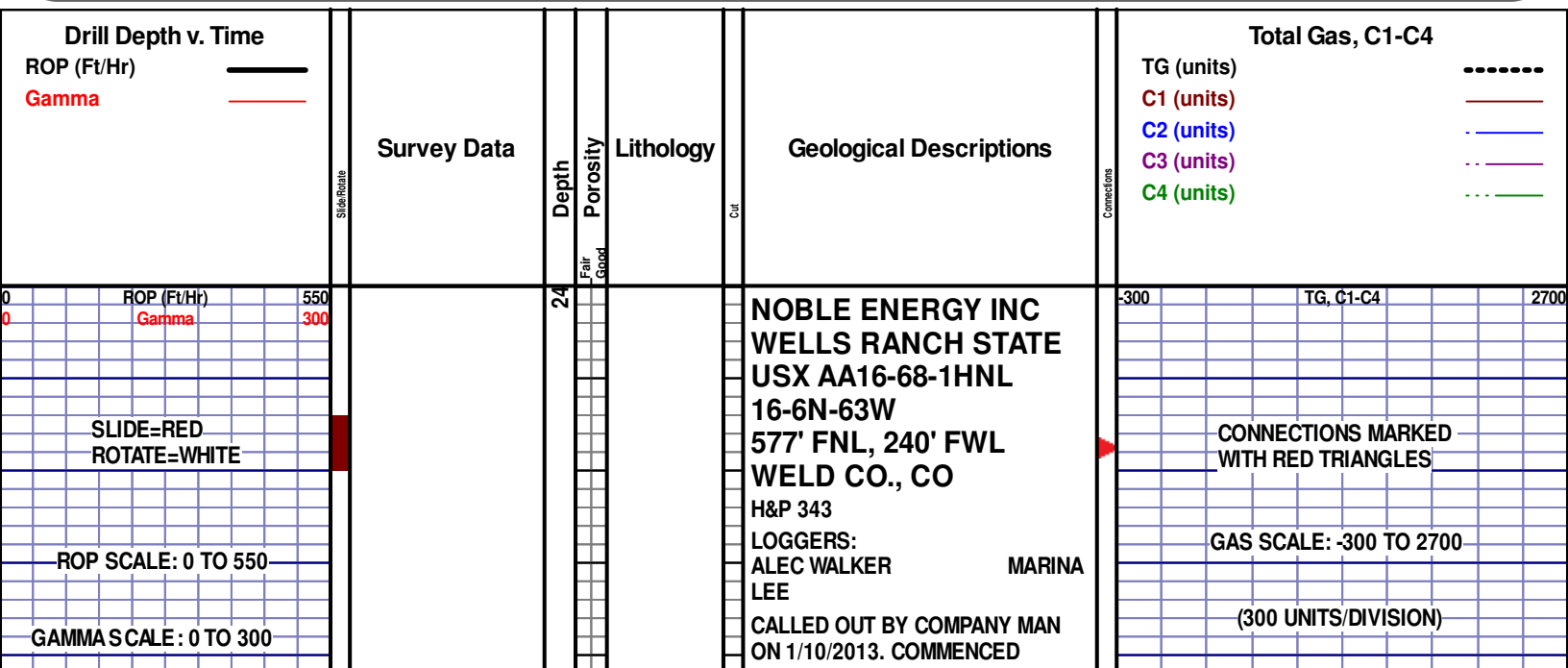
Anhy
 Bent
 Brec
 Cht
 Clyst
 Coal
 Congl

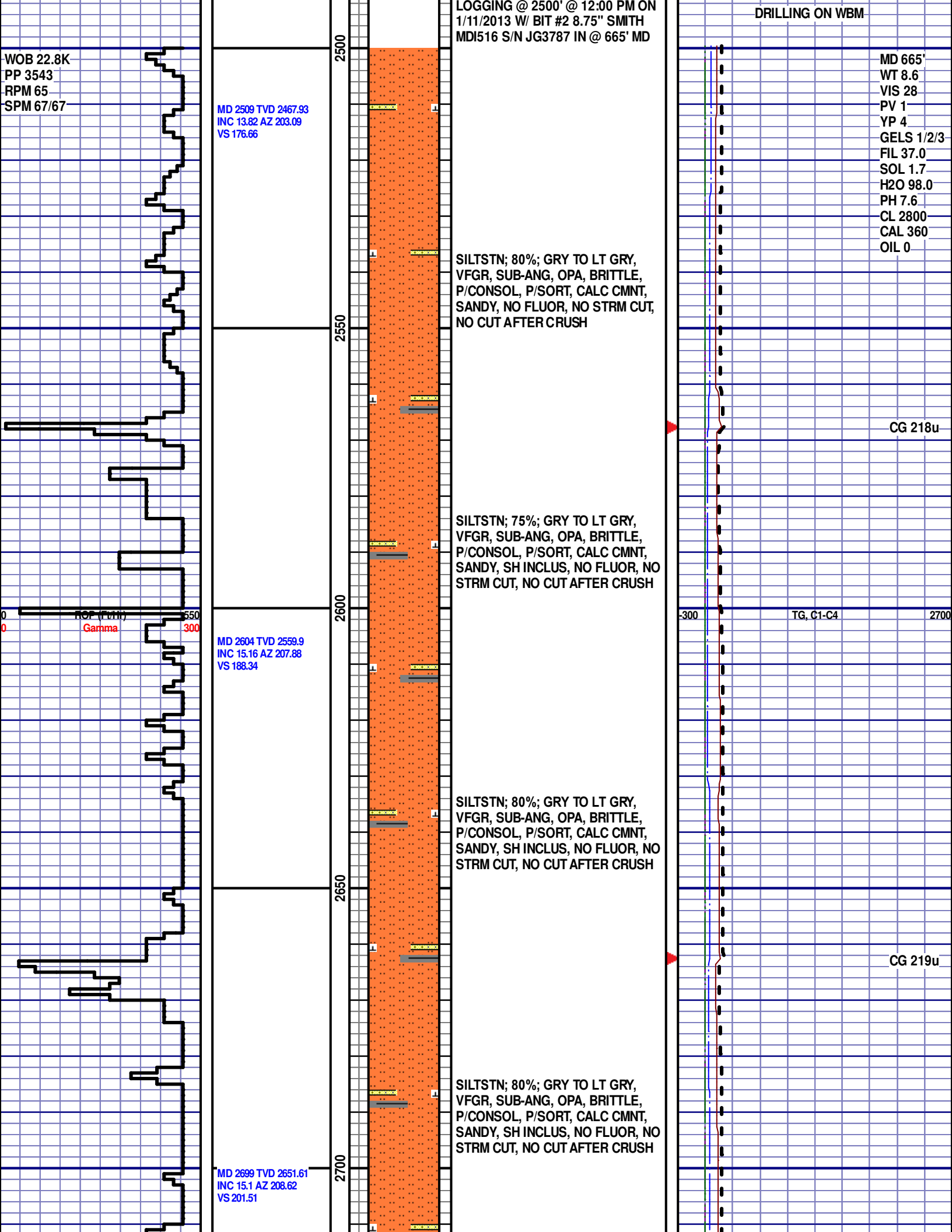
Dol
 Gyp
 Igne
 Chk
 Lmst
 Meta
 Mrlst

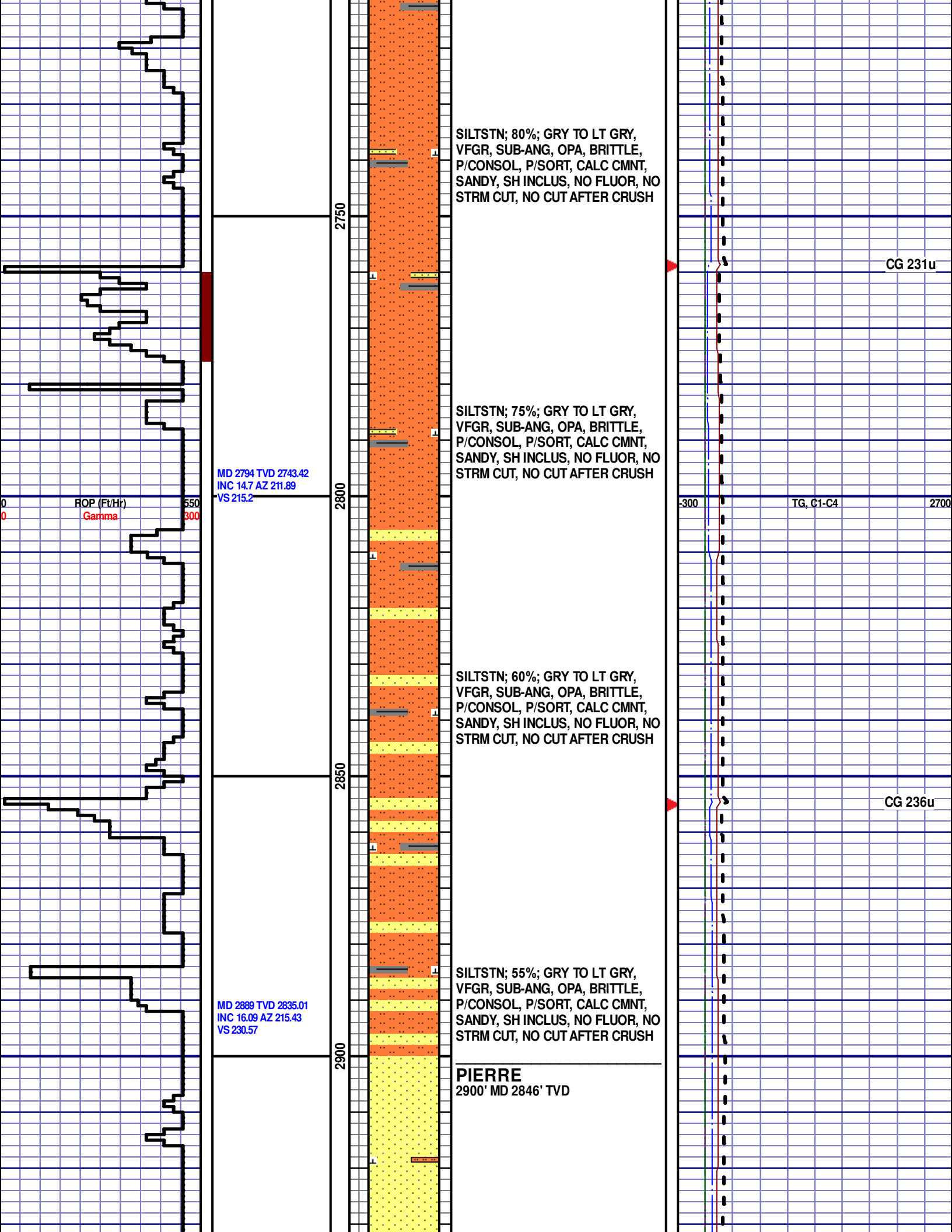
Salt
 Shale
 Shcol
 Shgy
 Sltst
 Ss
 Till

gw
 lmywash
 ogw
 olmywash
 oshly gw
 shly gw
 sdygw

hvycrbsh
 NO SMPL
 Lsdetrst
 sltst
 sdy sh
 Cement







SILTSTN; 80%; GRY TO LT GRY,
VFGR, SUB-ANG, OPA, BRITTLE,
P/CONSOL, P/SORT, CALC CMNT,
SANDY, SH INCLUS, NO FLUOR, NO
STRM CUT, NO CUT AFTER CRUSH

SILTSTN; 75%; GRY TO LT GRY,
VFGR, SUB-ANG, OPA, BRITTLE,
P/CONSOL, P/SORT, CALC CMNT,
SANDY, SH INCLUS, NO FLUOR, NO
STRM CUT, NO CUT AFTER CRUSH

SILTSTN; 60%; GRY TO LT GRY,
VFGR, SUB-ANG, OPA, BRITTLE,
P/CONSOL, P/SORT, CALC CMNT,
SANDY, SH INCLUS, NO FLUOR, NO
STRM CUT, NO CUT AFTER CRUSH

SILTSTN; 55%; GRY TO LT GRY,
VFGR, SUB-ANG, OPA, BRITTLE,
P/CONSOL, P/SORT, CALC CMNT,
SANDY, SH INCLUS, NO FLUOR, NO
STRM CUT, NO CUT AFTER CRUSH

PIERRE
2900' MD 2846' TVD

MD 2794 TVD 2743.42
INC 14.7 AZ 211.89
VS 215.2

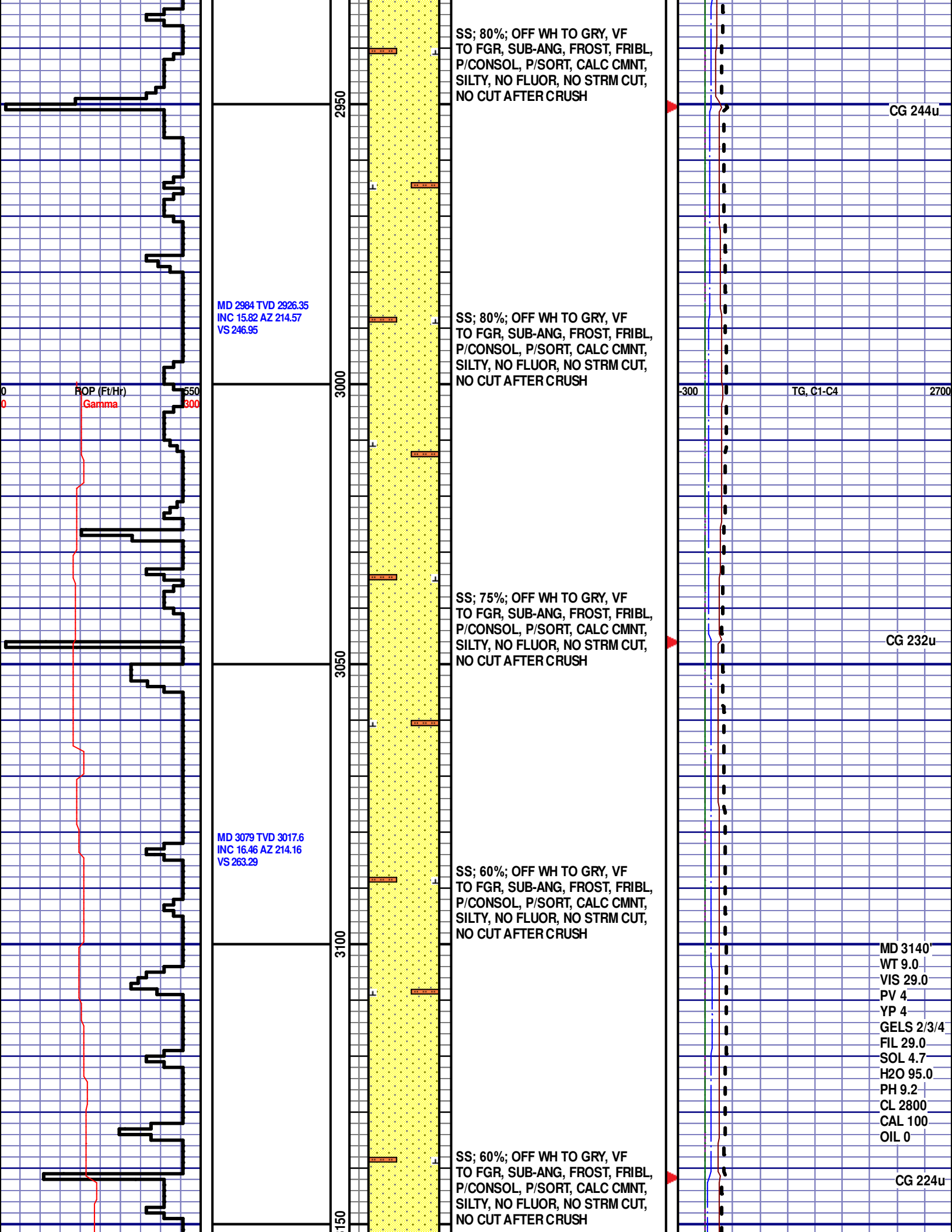
MD 2889 TVD 2835.01
INC 16.09 AZ 215.43
VS 230.57

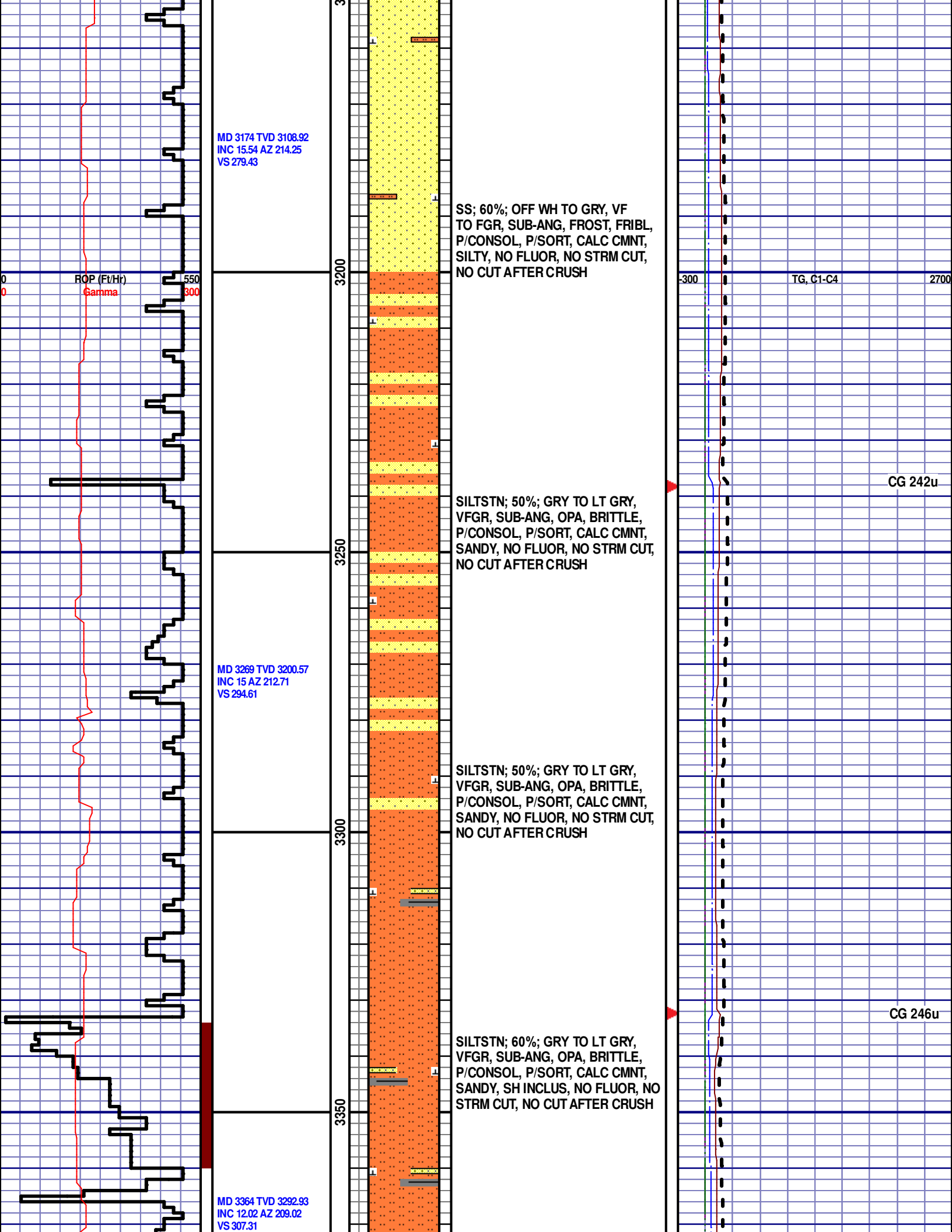
ROP (Ft/Hr)
Gamma

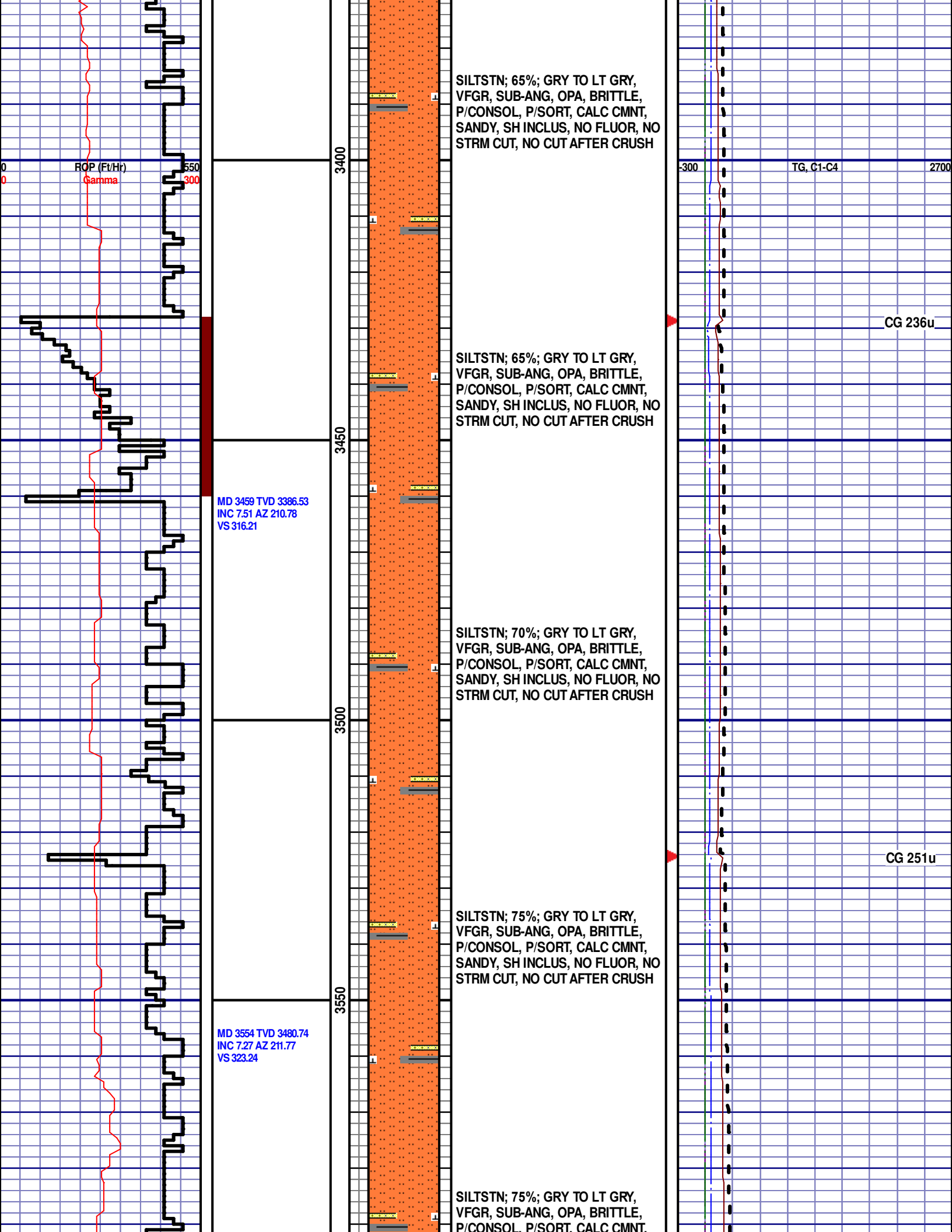
CG 231u

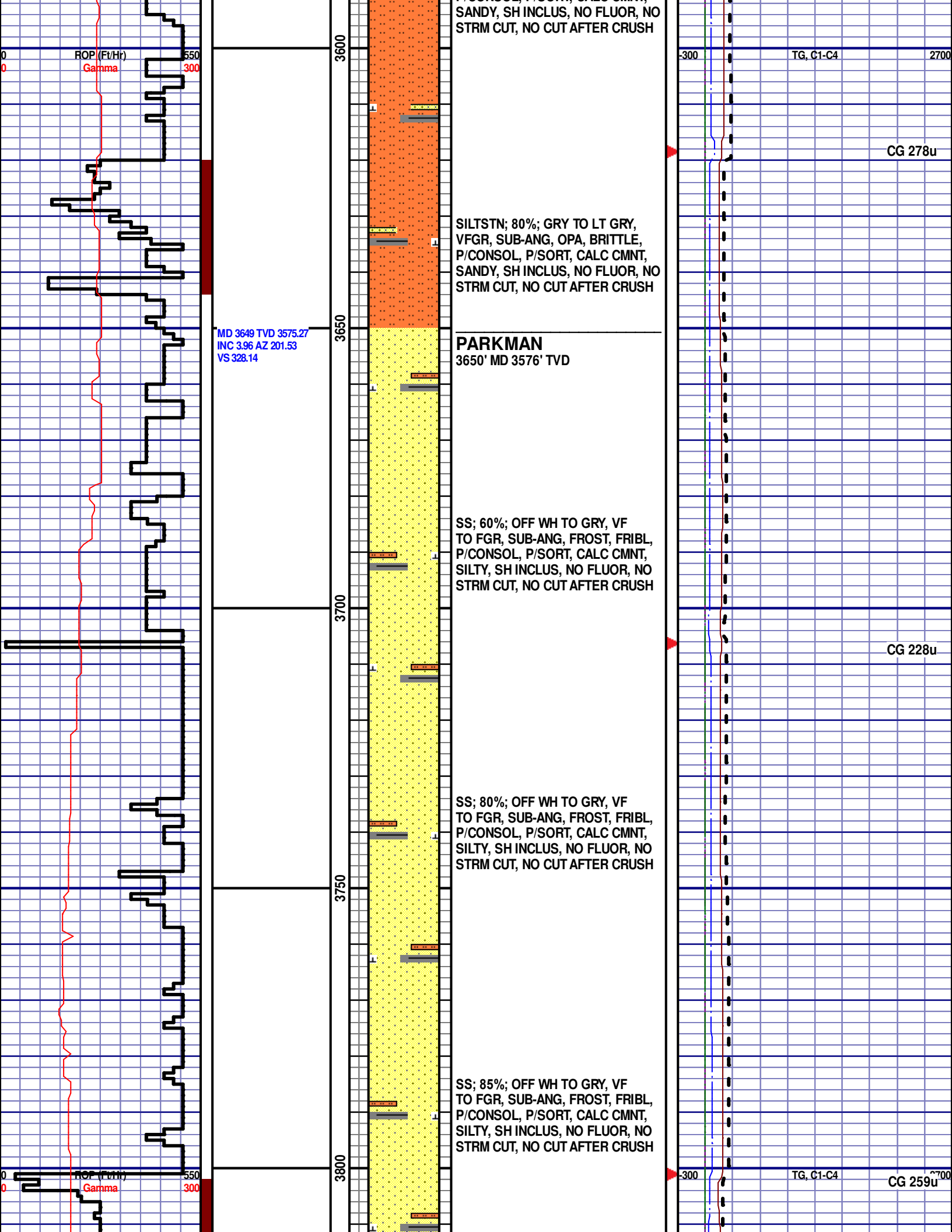
TG, C1-C4

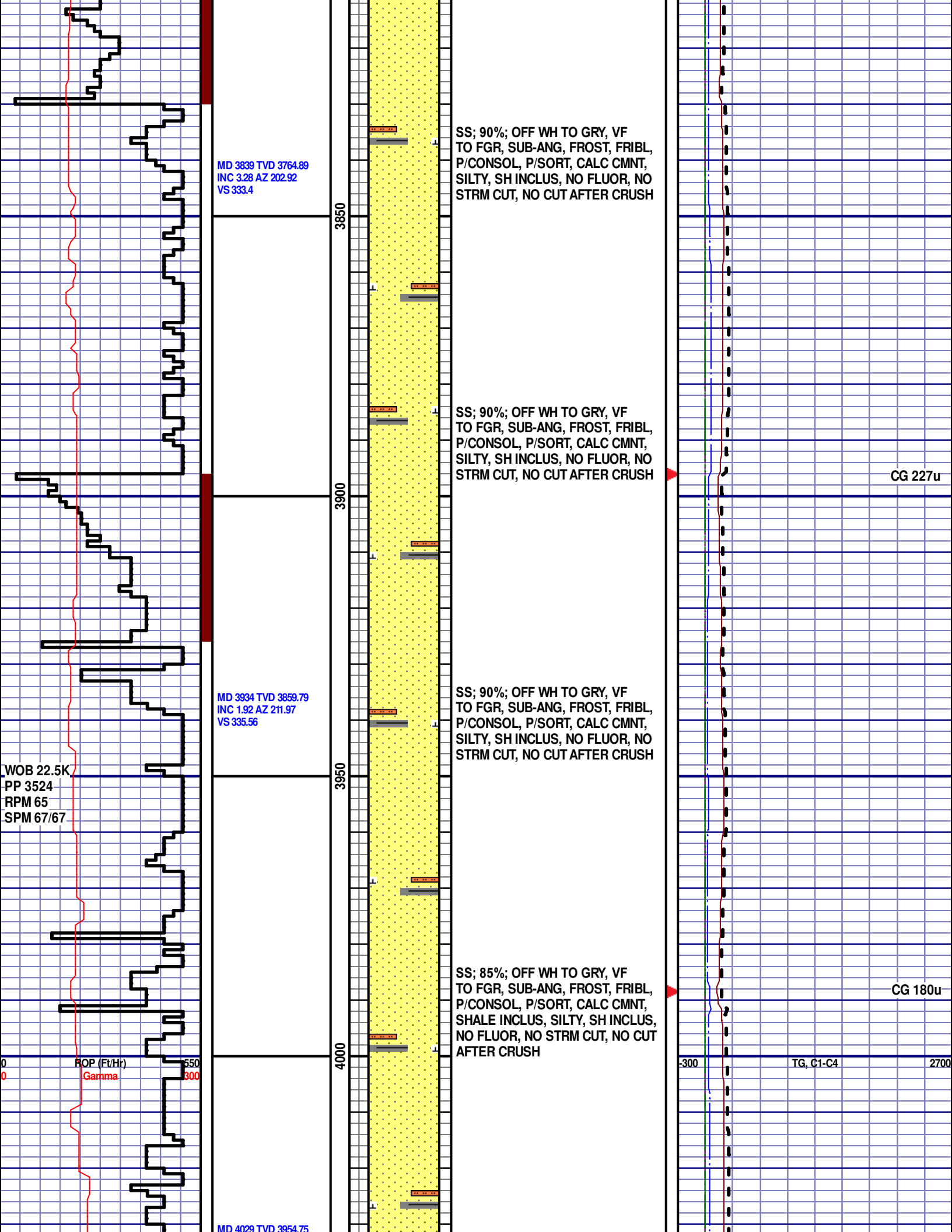
CG 236u

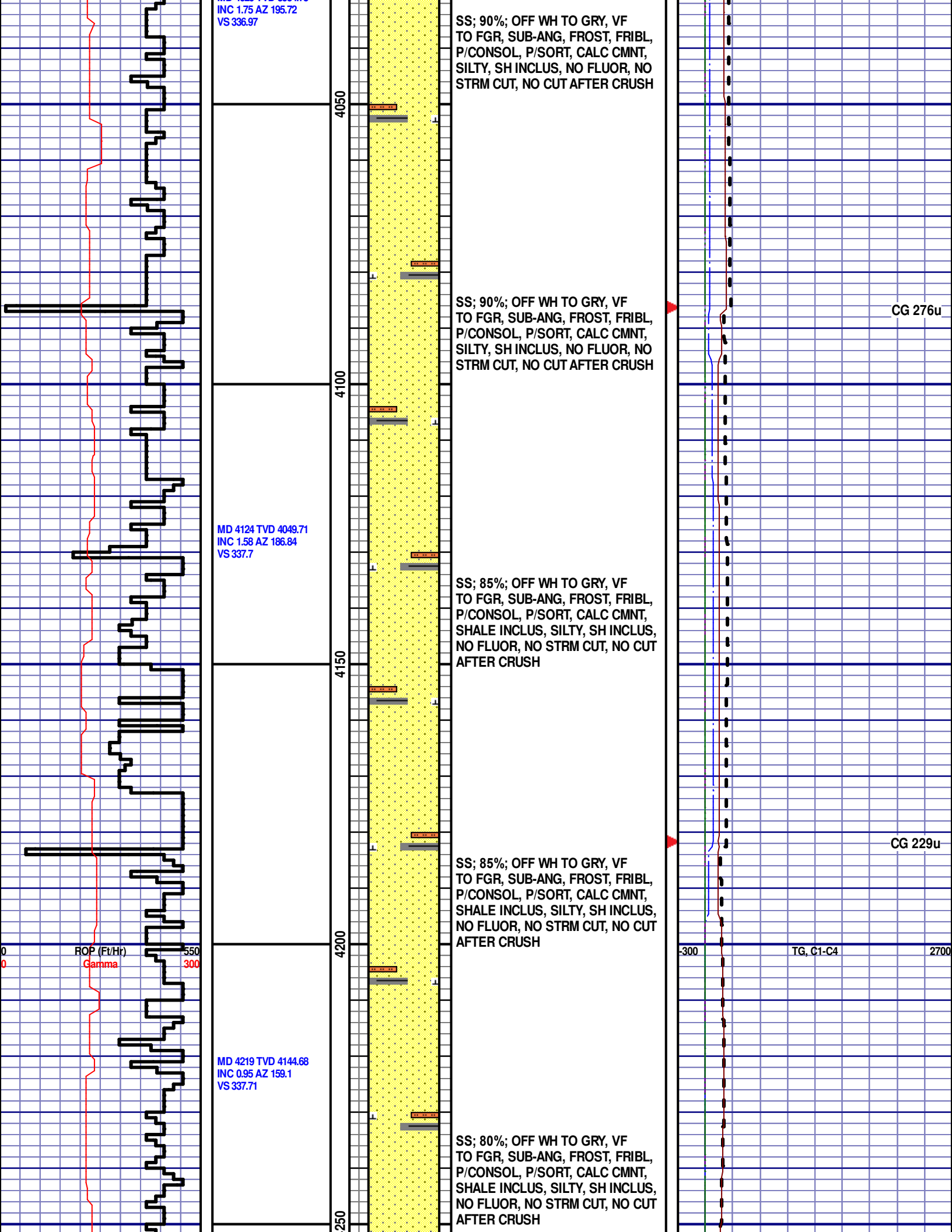


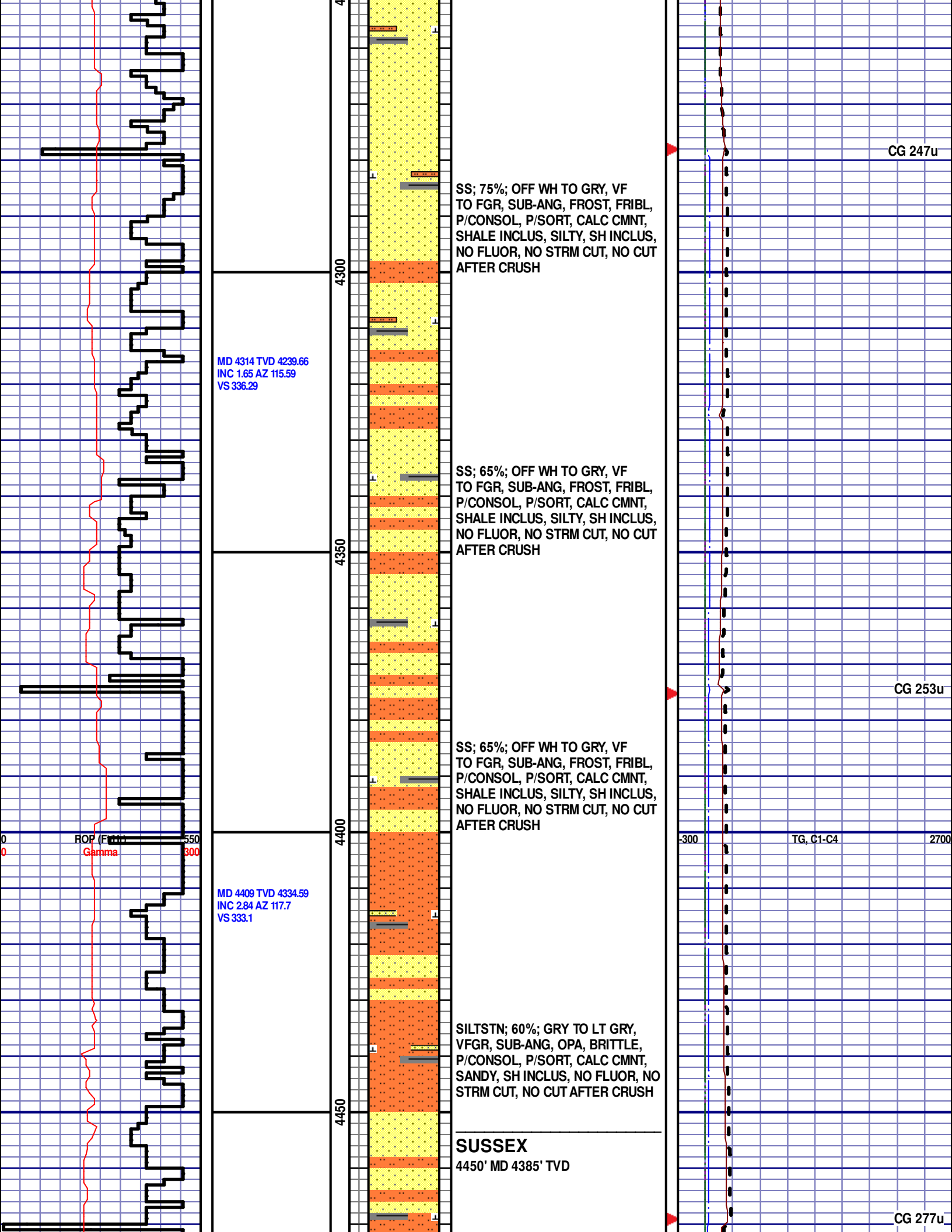


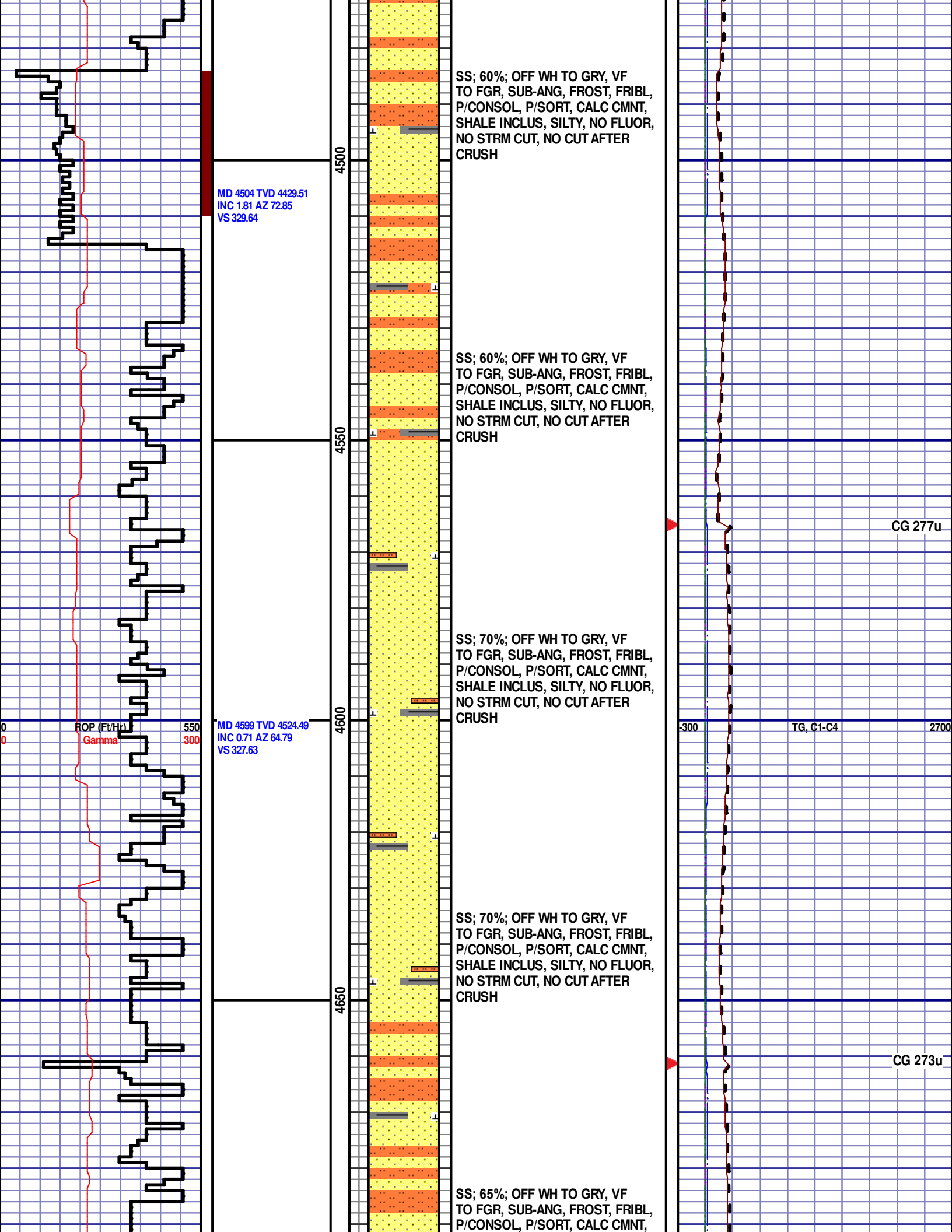


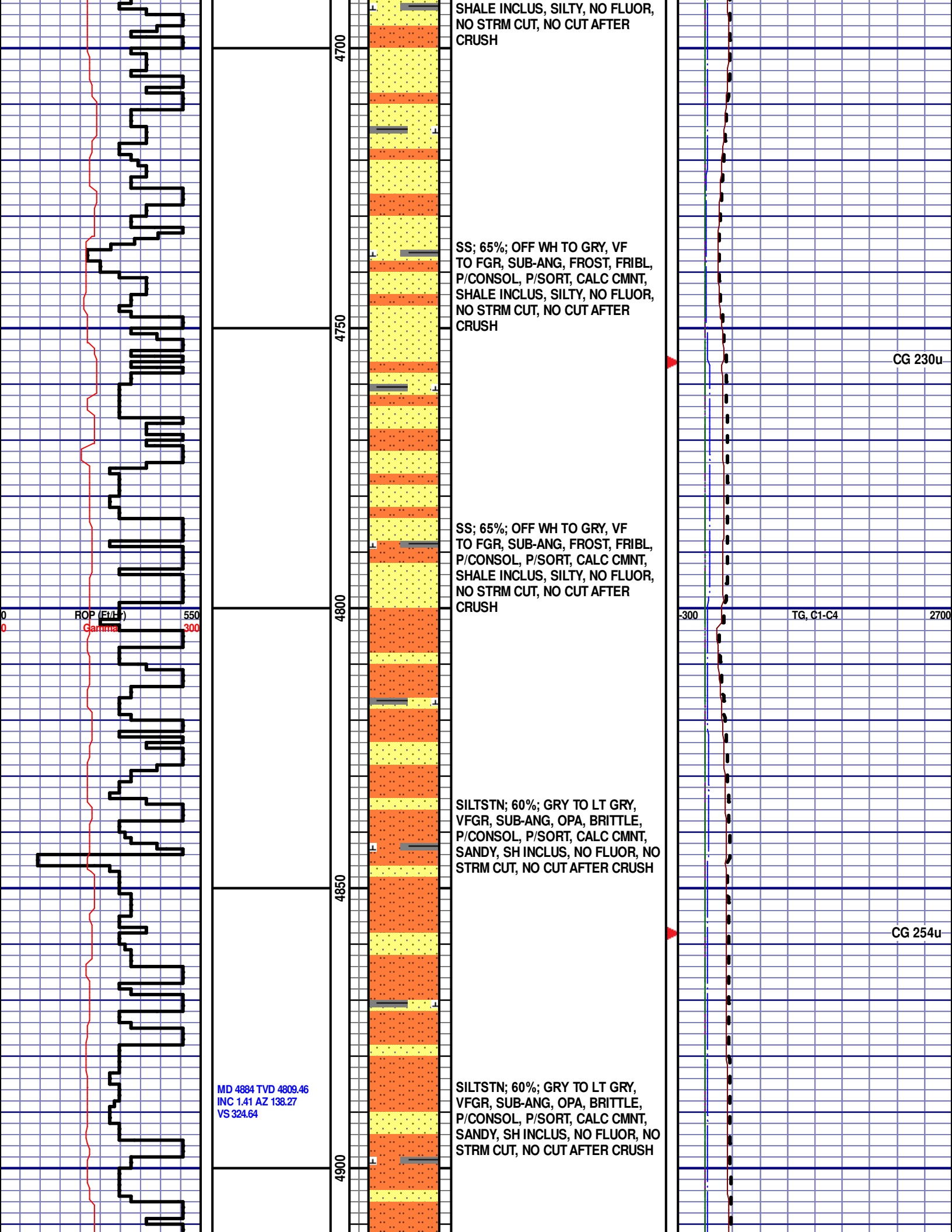


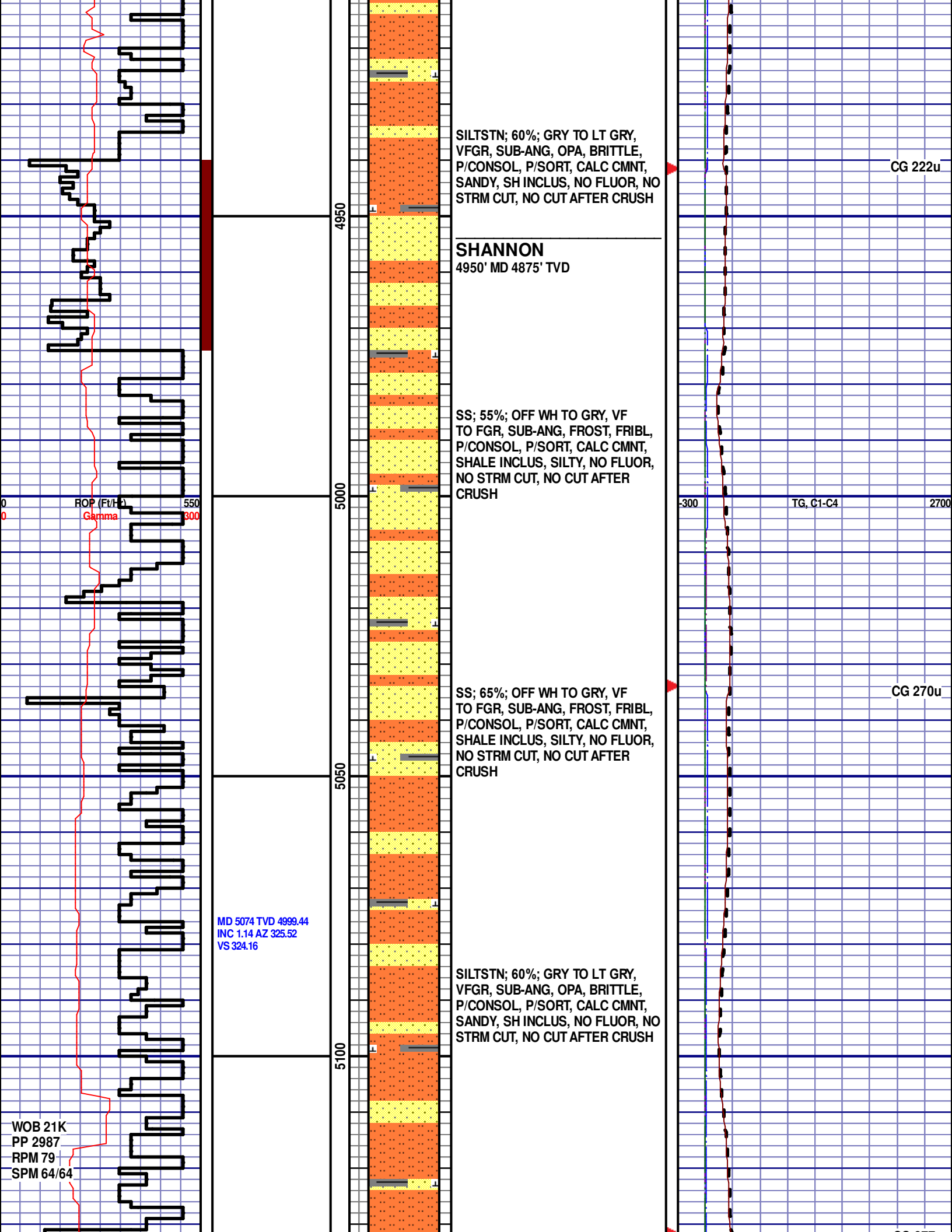


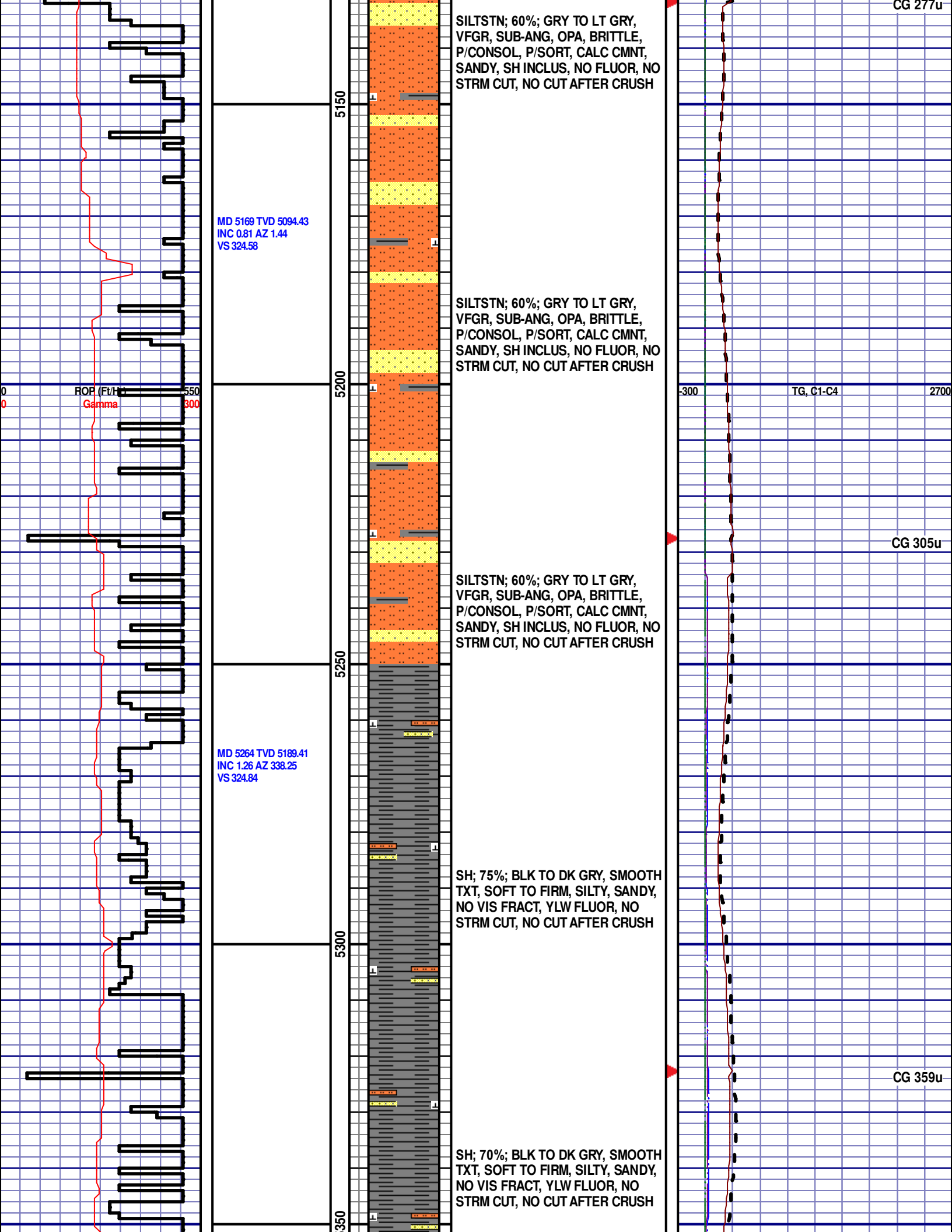


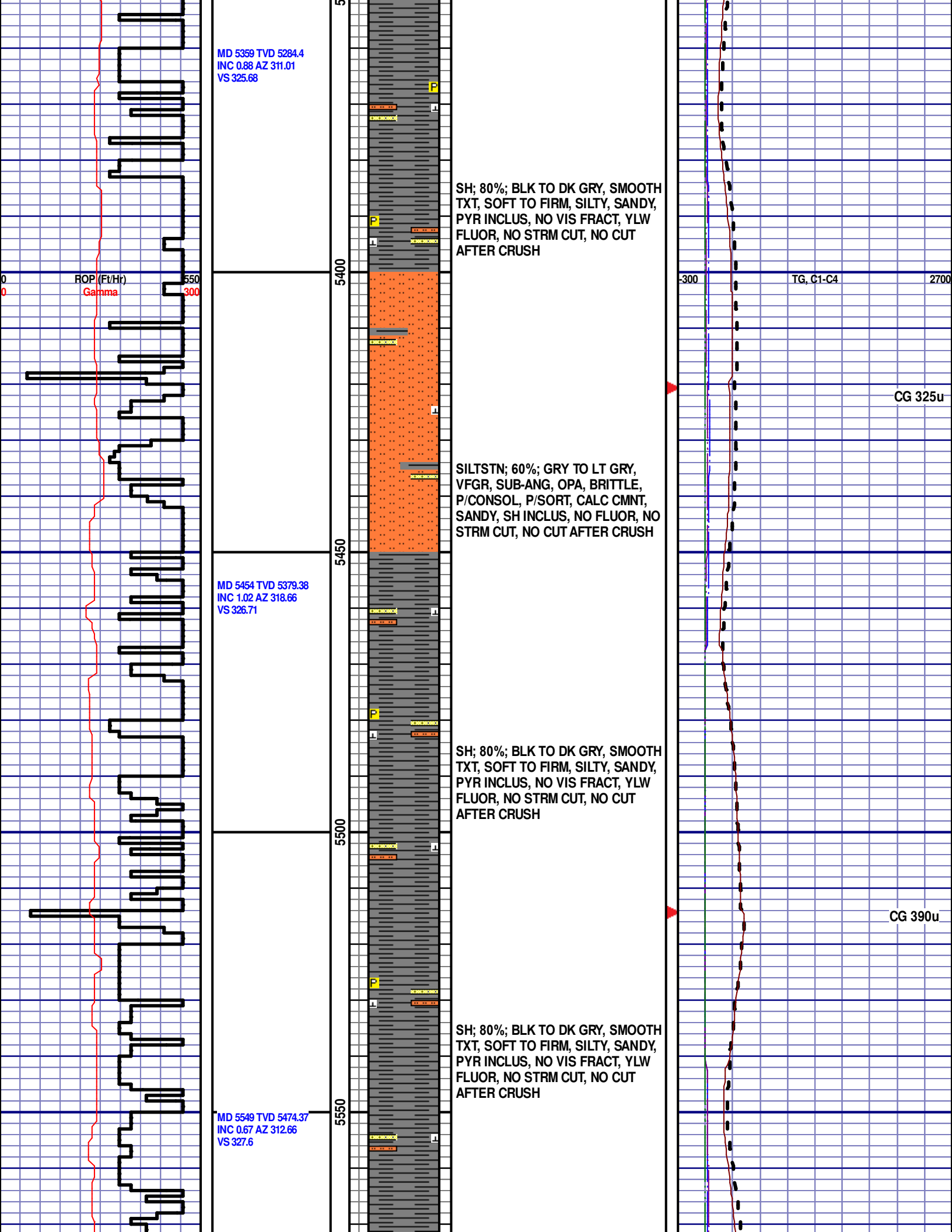


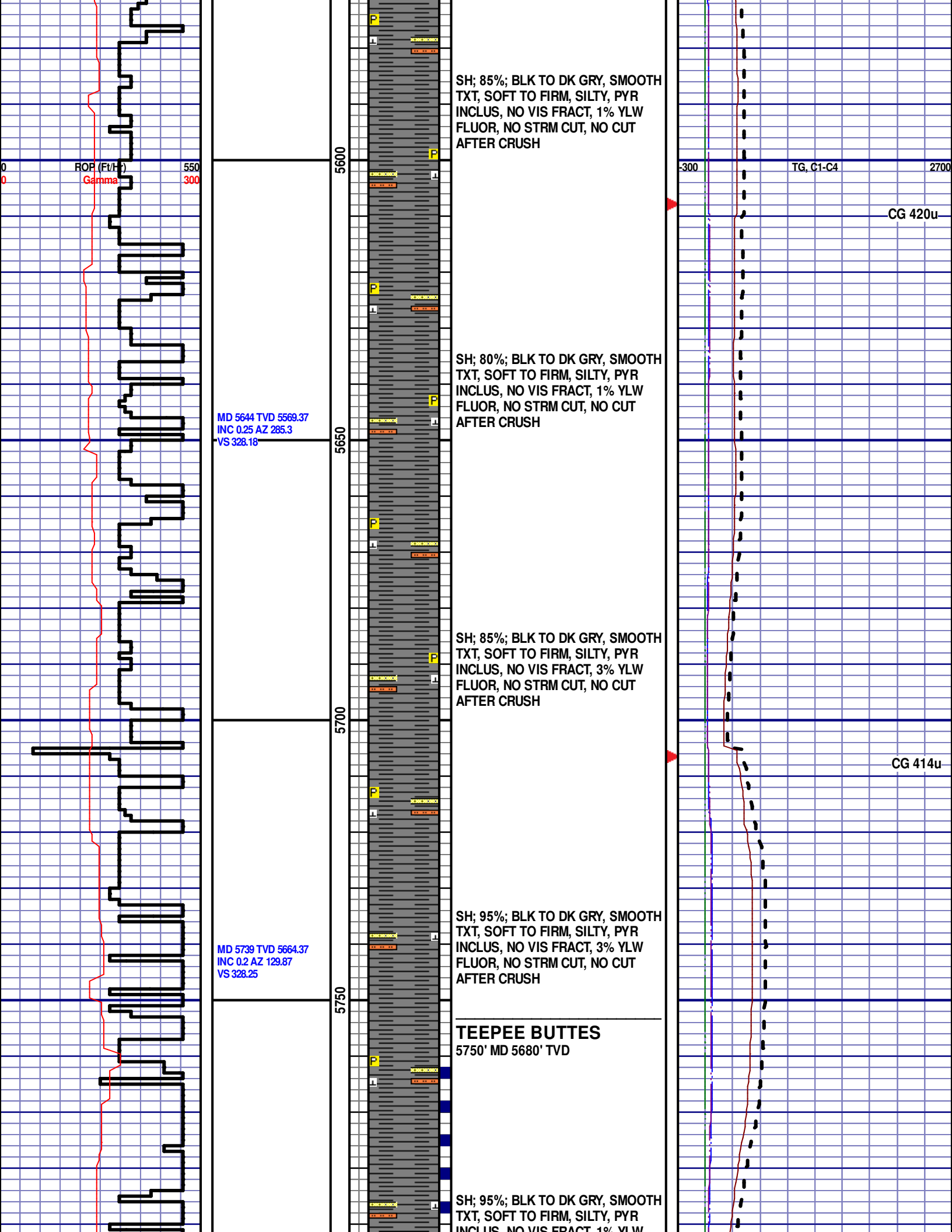


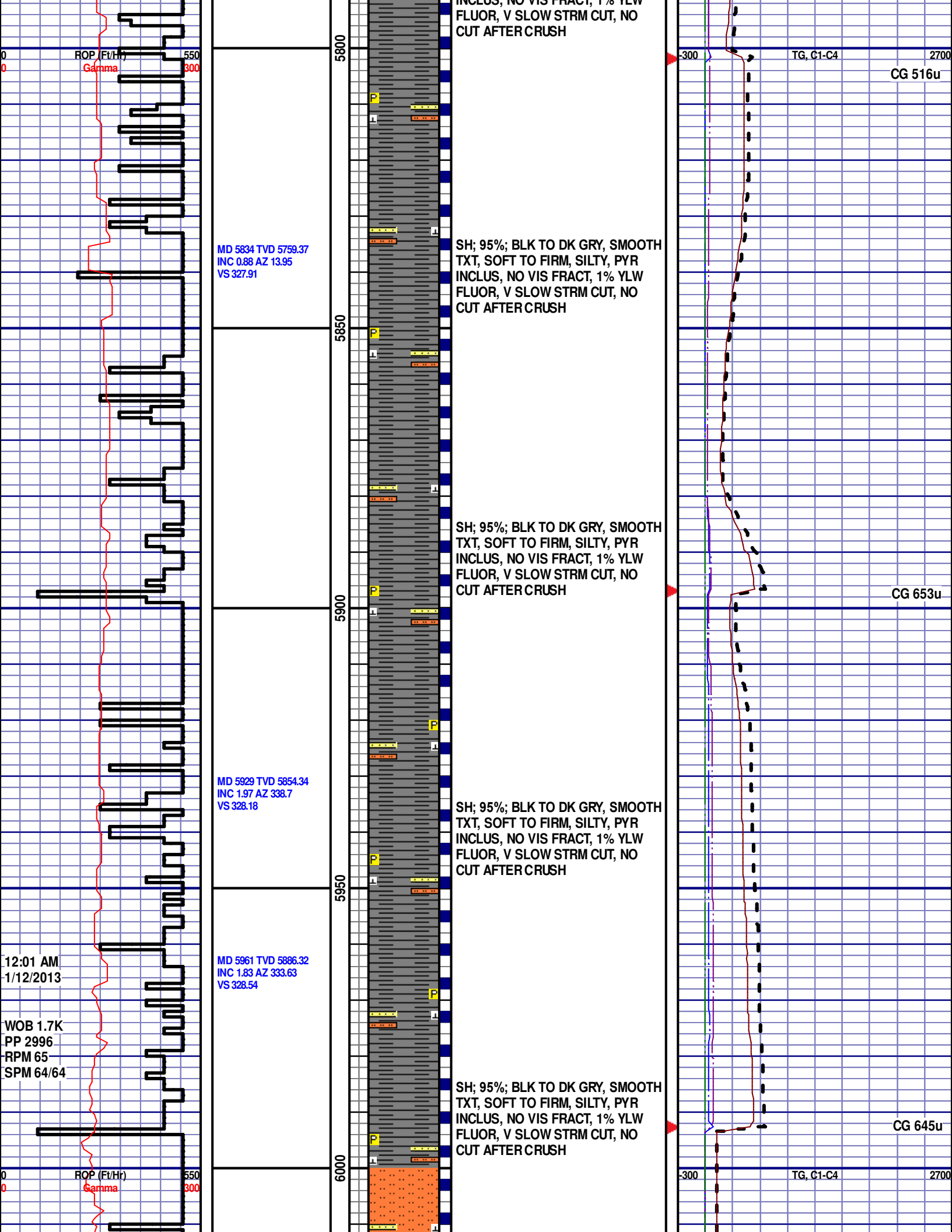


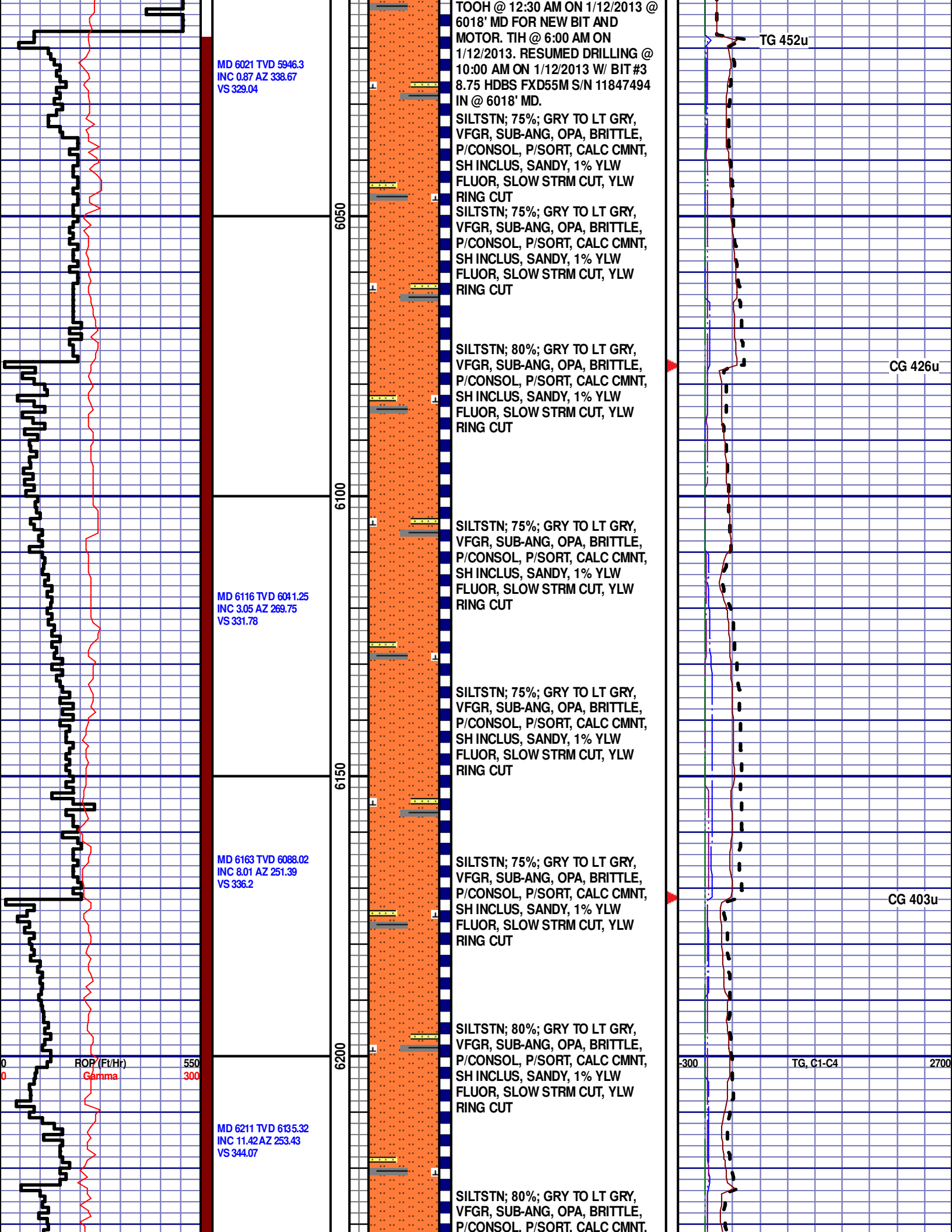


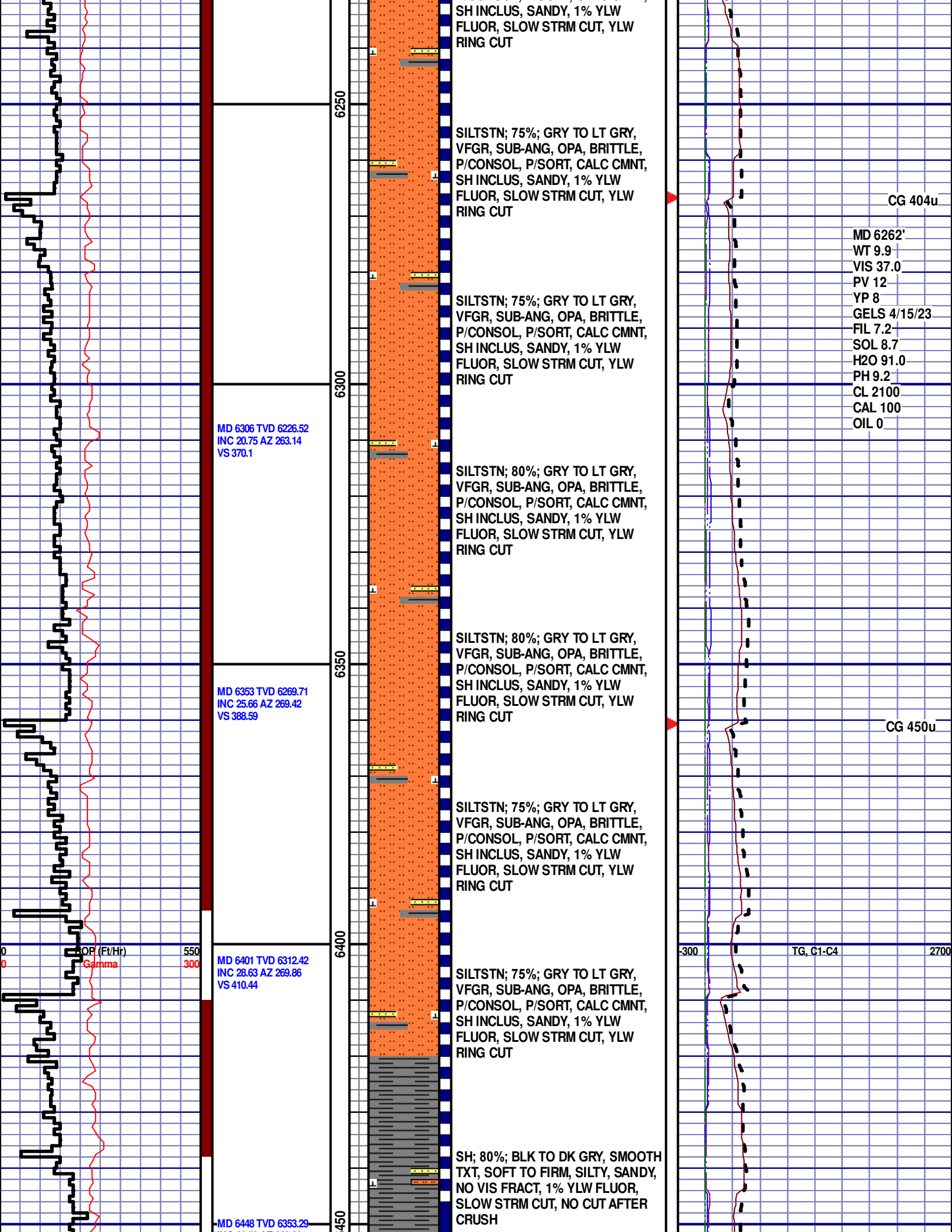


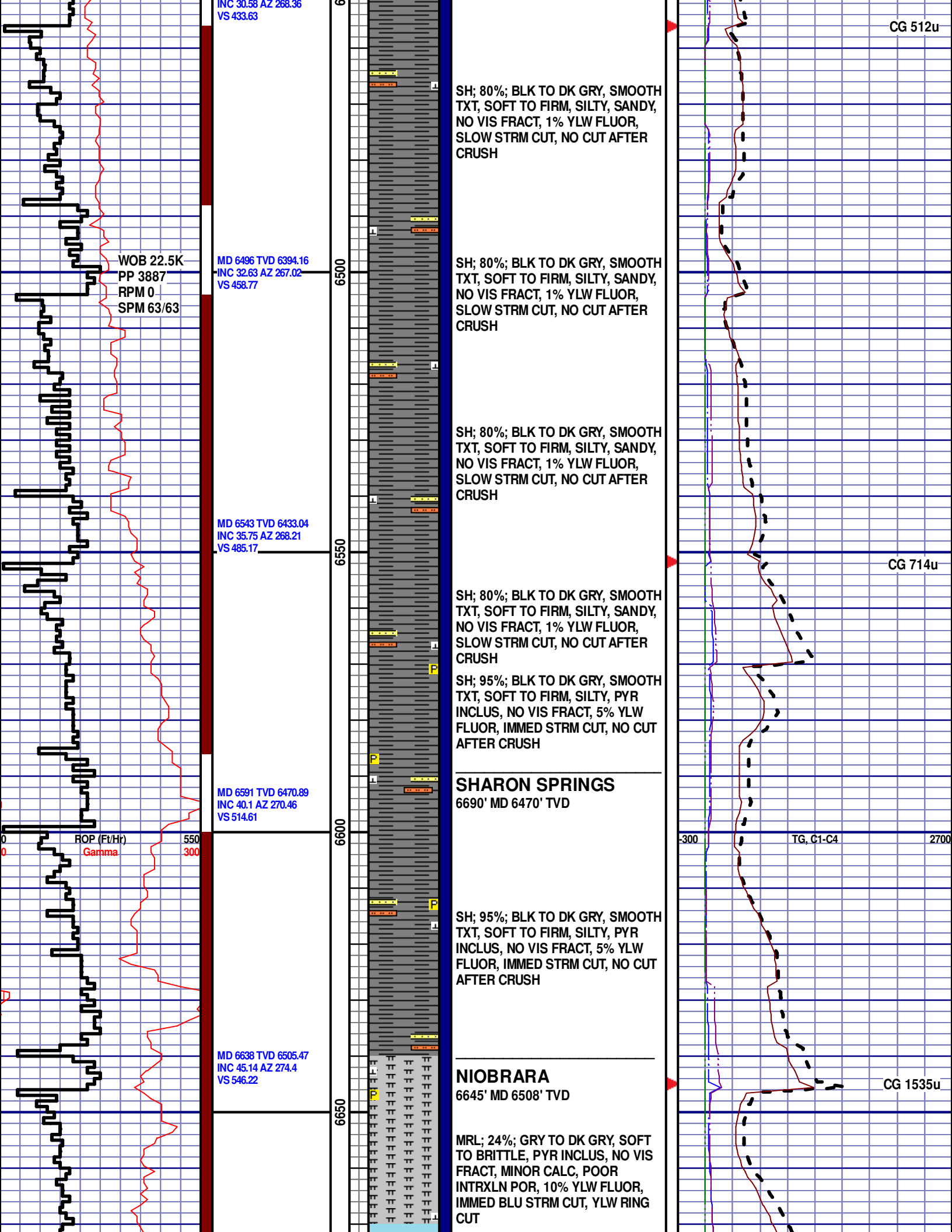












INC 30.58 AZ 268.36
VS 433.63

WOB 22.5K
PP 3887
RPM 0
SPM 63/63

MD 6496 TVD 6394.16
INC 32.63 AZ 267.02
VS 458.77

MD 6543 TVD 6433.04
INC 35.75 AZ 268.21
VS 485.17

MD 6591 TVD 6470.89
INC 40.1 AZ 270.46
VS 514.61

MD 6638 TVD 6505.47
INC 45.14 AZ 274.4
VS 546.22

SH; 80%; BLK TO DK GRY, SMOOTH
TXT, SOFT TO FIRM, SILTY, SANDY,
NO VIS FRACT, 1% YLW FLUOR,
SLOW STRM CUT, NO CUT AFTER
CRUSH

SH; 80%; BLK TO DK GRY, SMOOTH
TXT, SOFT TO FIRM, SILTY, SANDY,
NO VIS FRACT, 1% YLW FLUOR,
SLOW STRM CUT, NO CUT AFTER
CRUSH

SH; 80%; BLK TO DK GRY, SMOOTH
TXT, SOFT TO FIRM, SILTY, SANDY,
NO VIS FRACT, 1% YLW FLUOR,
SLOW STRM CUT, NO CUT AFTER
CRUSH

SH; 80%; BLK TO DK GRY, SMOOTH
TXT, SOFT TO FIRM, SILTY, SANDY,
NO VIS FRACT, 1% YLW FLUOR,
SLOW STRM CUT, NO CUT AFTER
CRUSH

SH; 95%; BLK TO DK GRY, SMOOTH
TXT, SOFT TO FIRM, SILTY, PYR
INCLUS, NO VIS FRACT, 5% YLW
FLUOR, IMMED STRM CUT, NO CUT
AFTER CRUSH

SHARON SPRINGS

6690' MD 6470' TVD

SH; 95%; BLK TO DK GRY, SMOOTH
TXT, SOFT TO FIRM, SILTY, PYR
INCLUS, NO VIS FRACT, 5% YLW
FLUOR, IMMED STRM CUT, NO CUT
AFTER CRUSH

NIOBRARA

6645' MD 6508' TVD

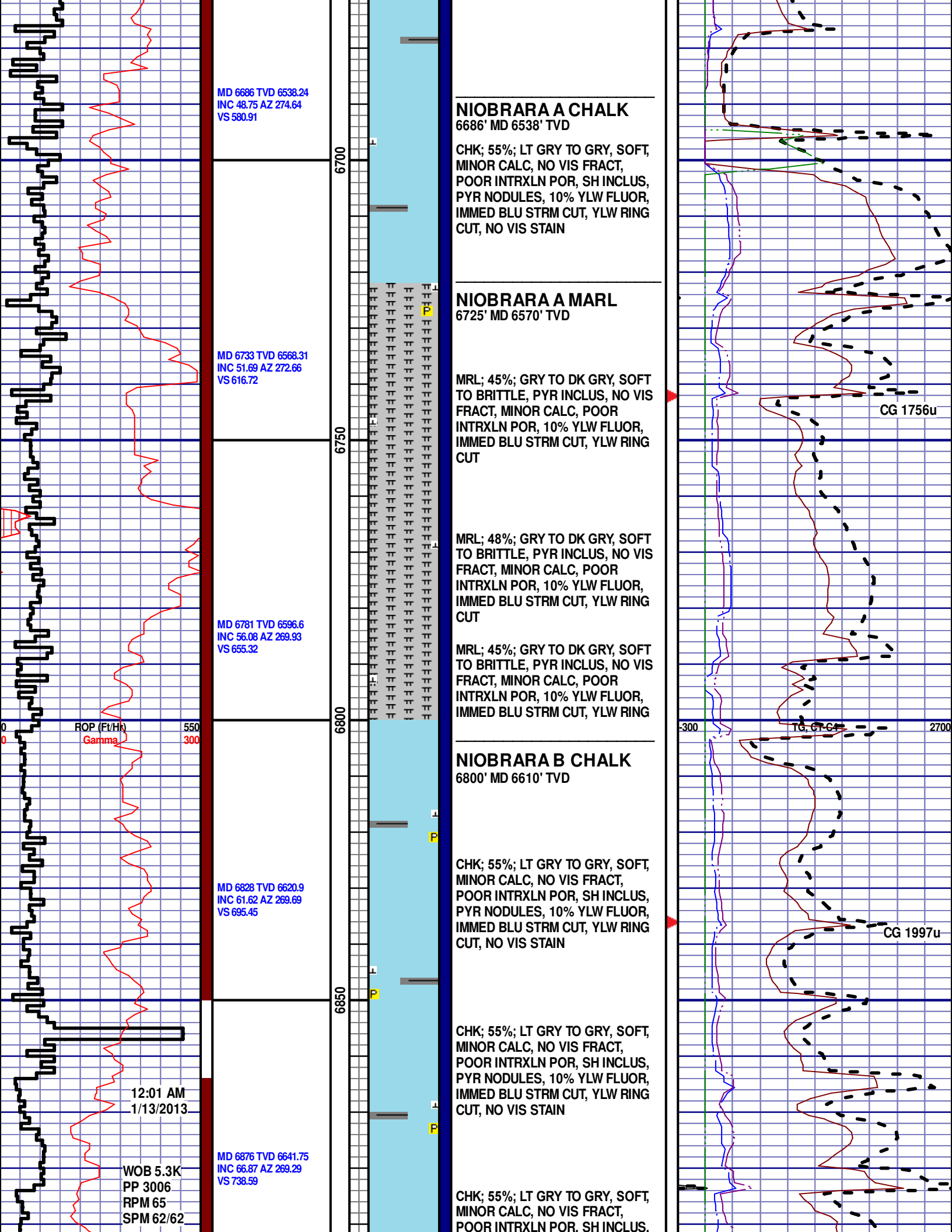
MRL; 24%; GRY TO DK GRY, SOFT
TO BRITTLE, GRY INCLUS, NO VIS
FRACT, MINOR CALC, POOR
INTRXLN POR, 10% YLW FLUOR,
IMMED BLU STRM CUT, YLW RING
CUT

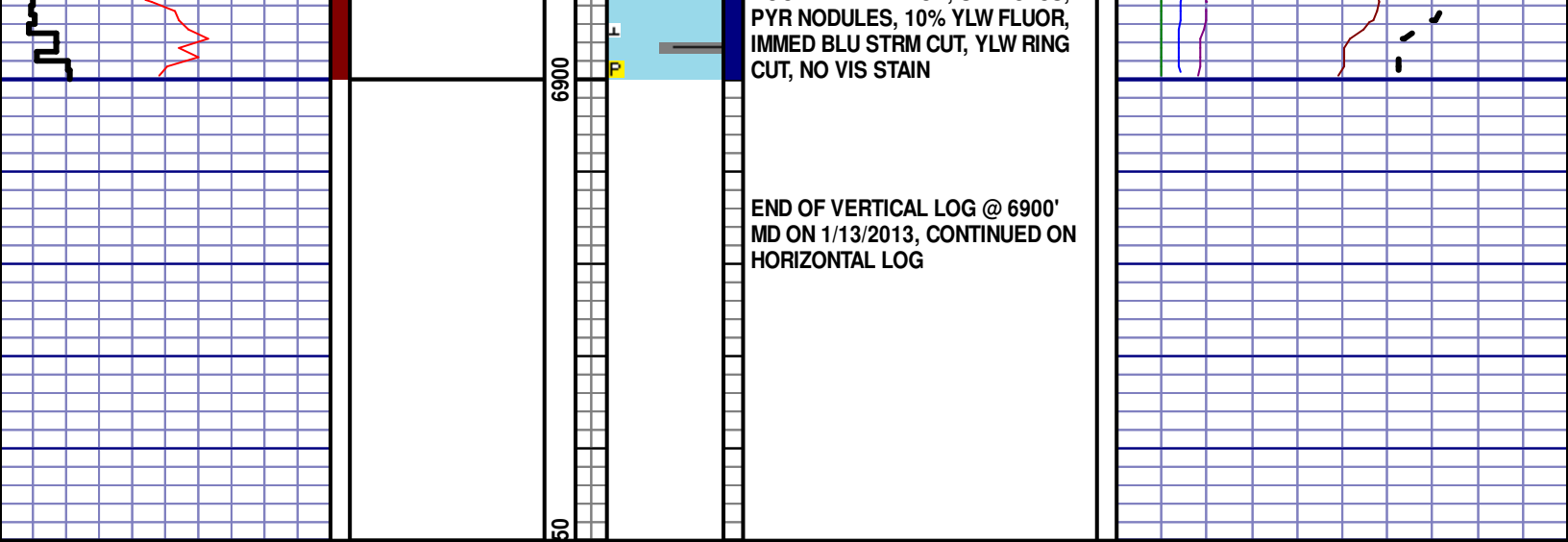
CG 512u

CG 714u

CG 1535u

-300 TG, C1-C4 2700





PYR NODULES, 10% YLW FLUOR,
IMMED BLU STRM CUT, YLW RING
CUT, NO VIS STAIN

END OF VERTICAL LOG @ 6900'
MD ON 1/13/2013, CONTINUED ON
HORIZONTAL LOG