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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: Andrew Christiano & Casey
Sensecqua
Log Interval: 2500' MD to 6700' MD
Start Date: July 17, 2013
Release Date: July 22, 2013

Well Information

Well Name: Wells Ranch USX
AA23-66-1HN

Location: 24-6N 63W
2186' FNL, 74' FWL

County: Weld
State: Colorado

Drilling Rig: H&P 321
Total Depth: 11078' MD
TD Date: July 22, 2013
Formation: Niobrara B Chalk
KB Elevation: 4838'
GR Elevation: 4808'
API Number: 05-123-37024

ROCK TYPES

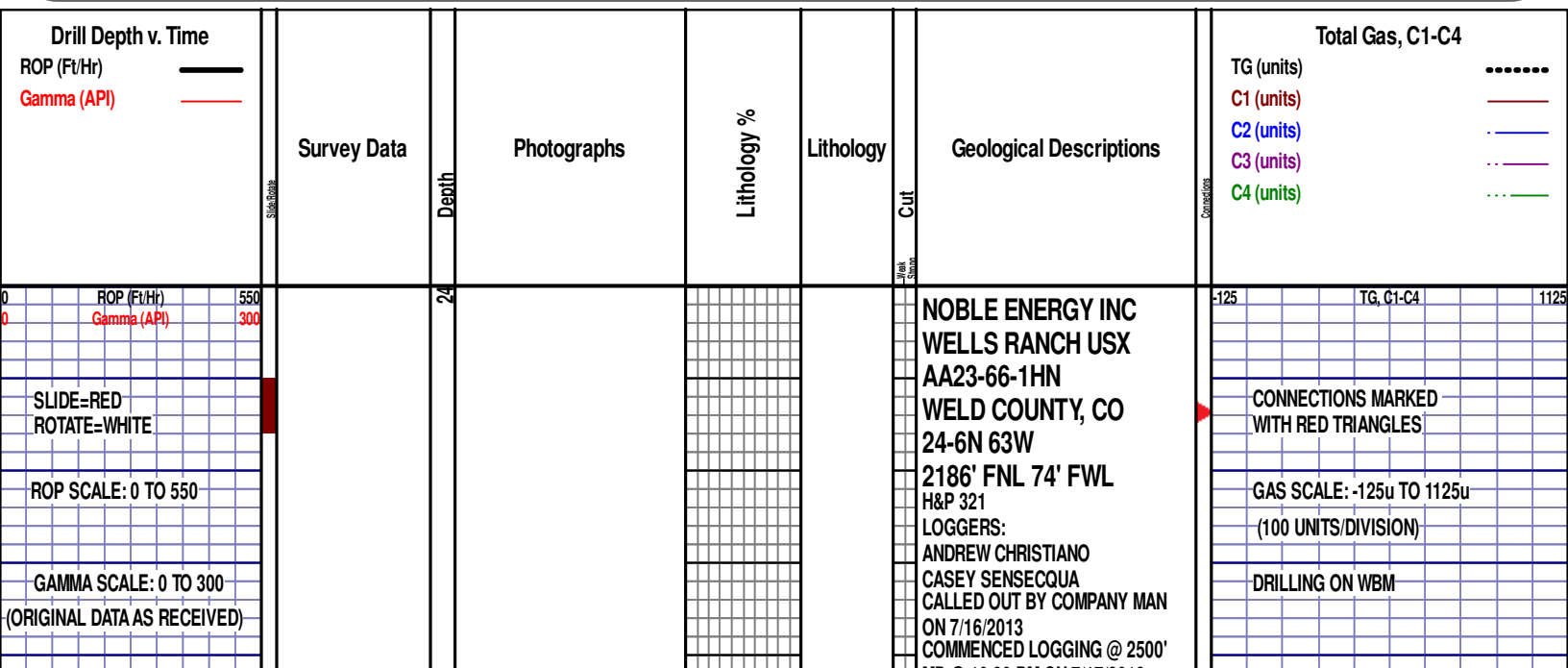
Anhy
 Bent
 Brec
 Cht
 Clyst
 Coal
 Congl

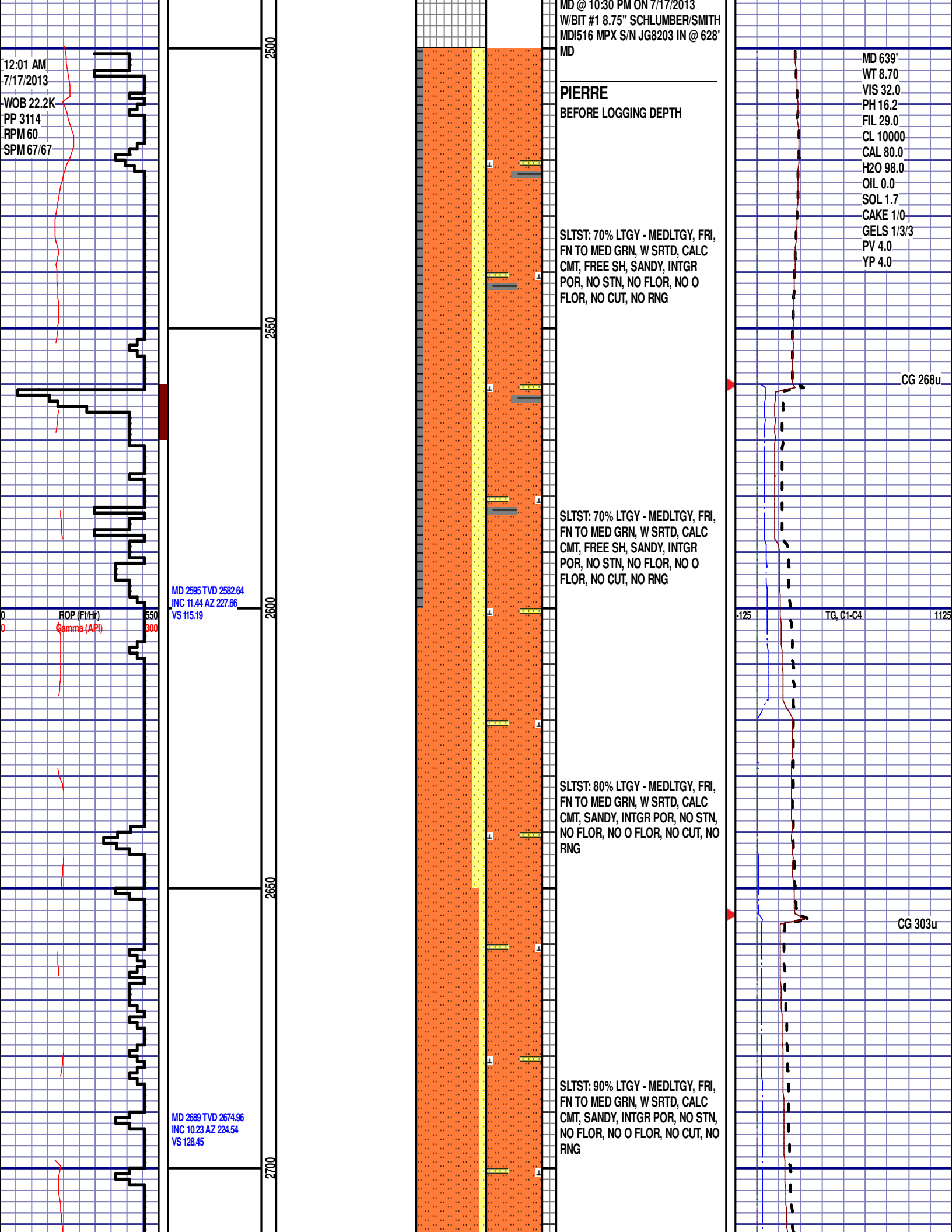
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 Chk
 Lmst
 Meta
 Mrlst

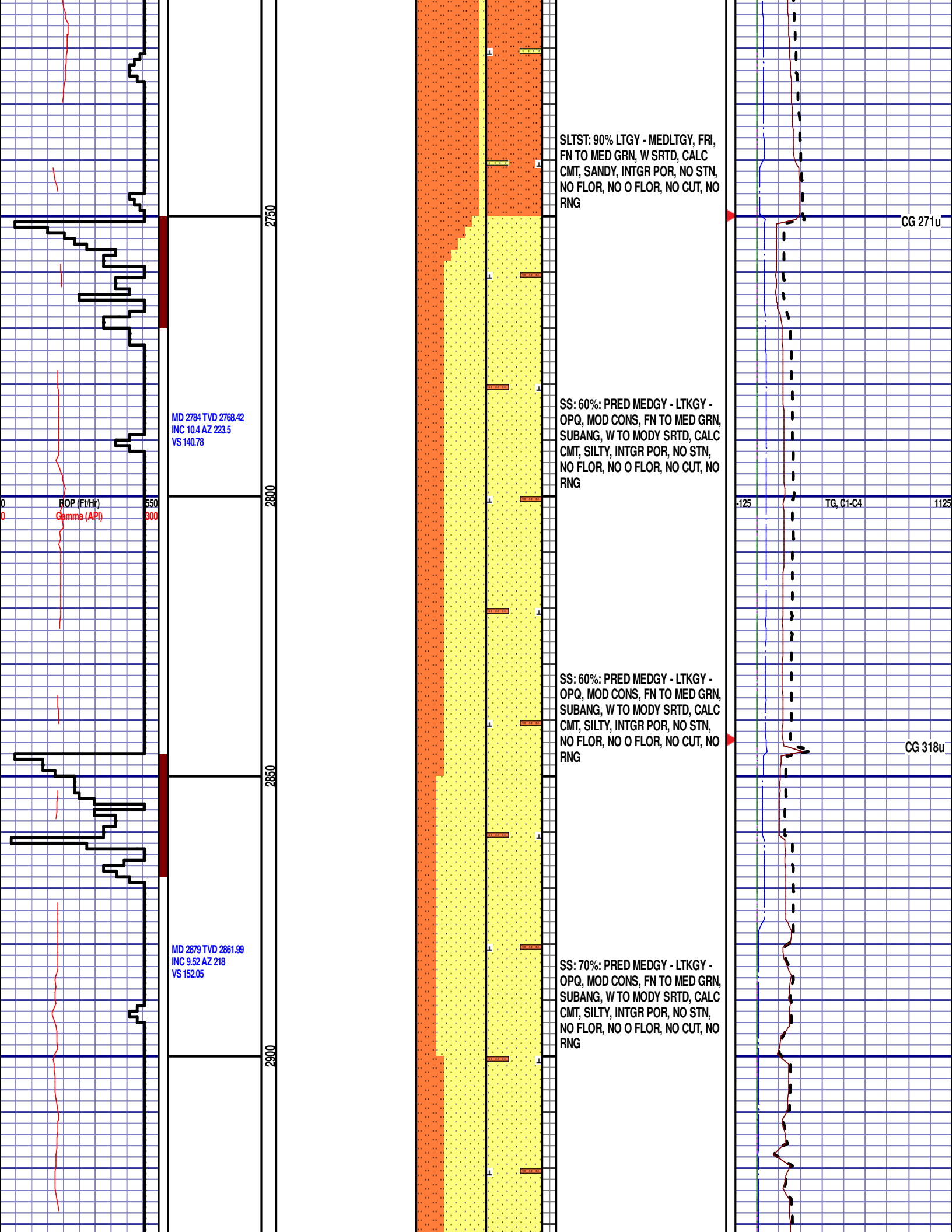
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 Ss
 Till

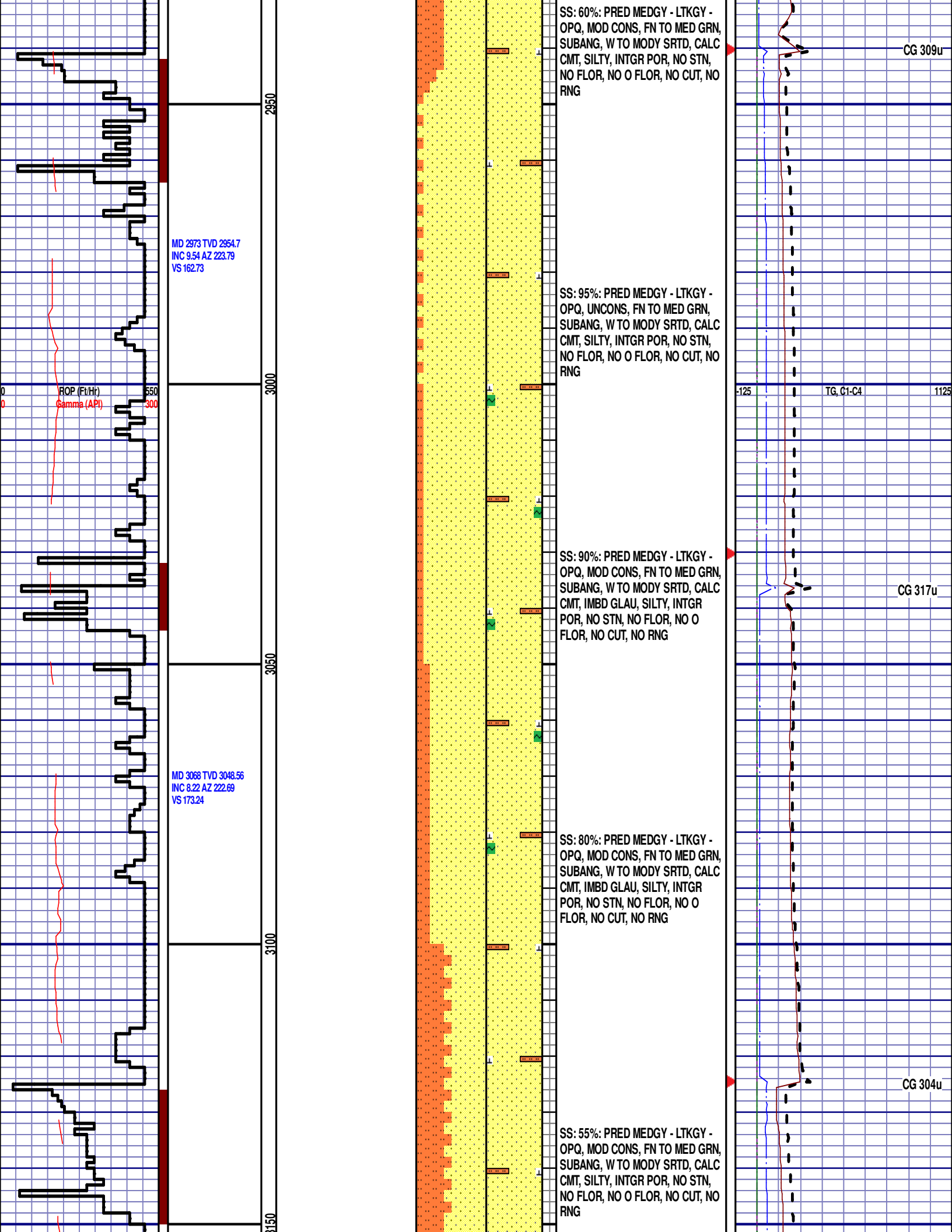
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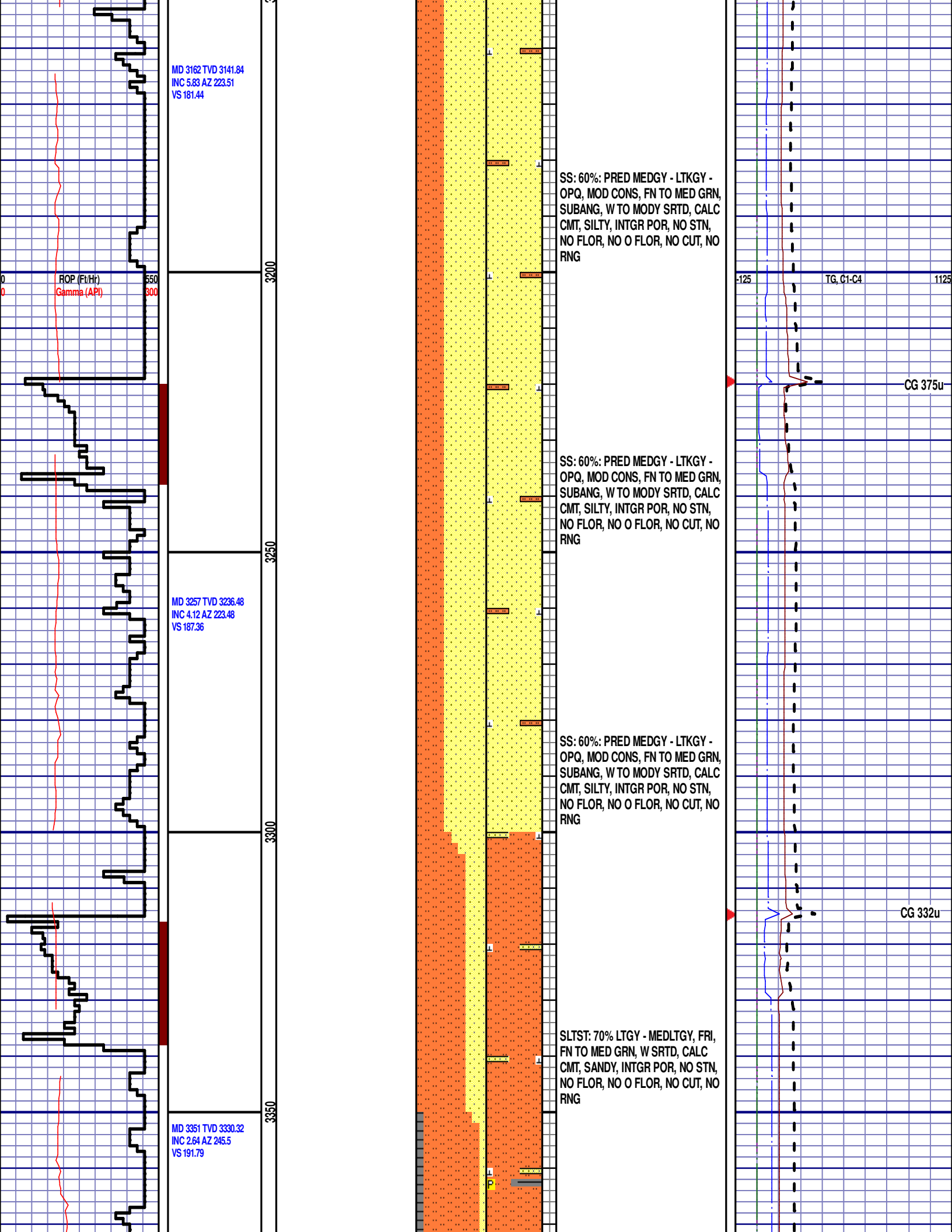
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 Lsdetrst
 sltst
 sdy sh
 Cement

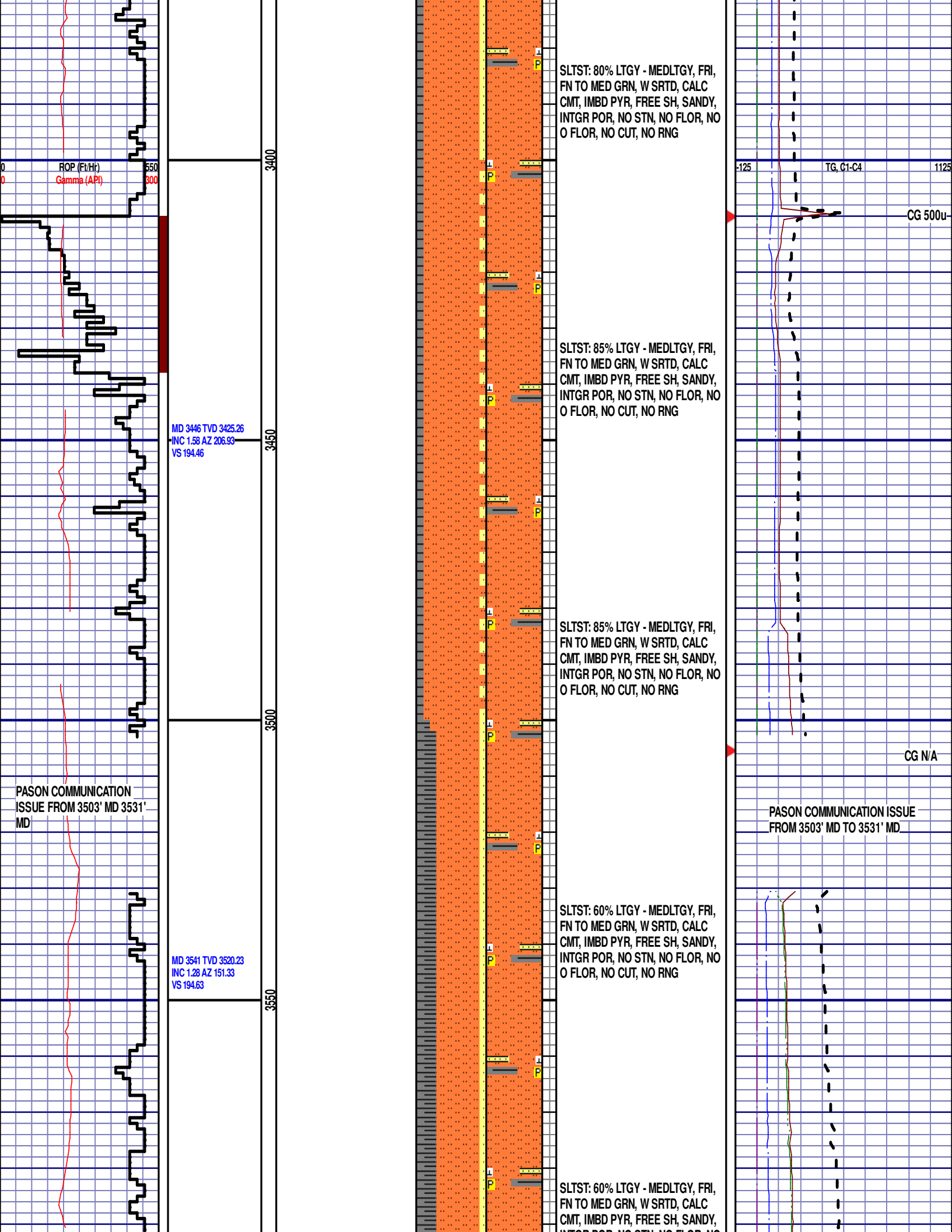












ROP (Ft/Hr)
Gamma (API)

MD 3446 TVD 3425.26
INC 1.58 AZ 206.93
VS 194.46

MD 3541 TVD 3520.23
INC 1.28 AZ 151.33
VS 194.63

PASON COMMUNICATION
ISSUE FROM 3503' MD TO 3531'
MD

SLTST: 80% LTGY - MEDLTGY, FRI,
FN TO MED GRN, W SRTD, CALC
CMT, IMBD PYR, FREE SH, SANDY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

SLTST: 85% LTGY - MEDLTGY, FRI,
FN TO MED GRN, W SRTD, CALC
CMT, IMBD PYR, FREE SH, SANDY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

SLTST: 85% LTGY - MEDLTGY, FRI,
FN TO MED GRN, W SRTD, CALC
CMT, IMBD PYR, FREE SH, SANDY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

SLTST: 60% LTGY - MEDLTGY, FRI,
FN TO MED GRN, W SRTD, CALC
CMT, IMBD PYR, FREE SH, SANDY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

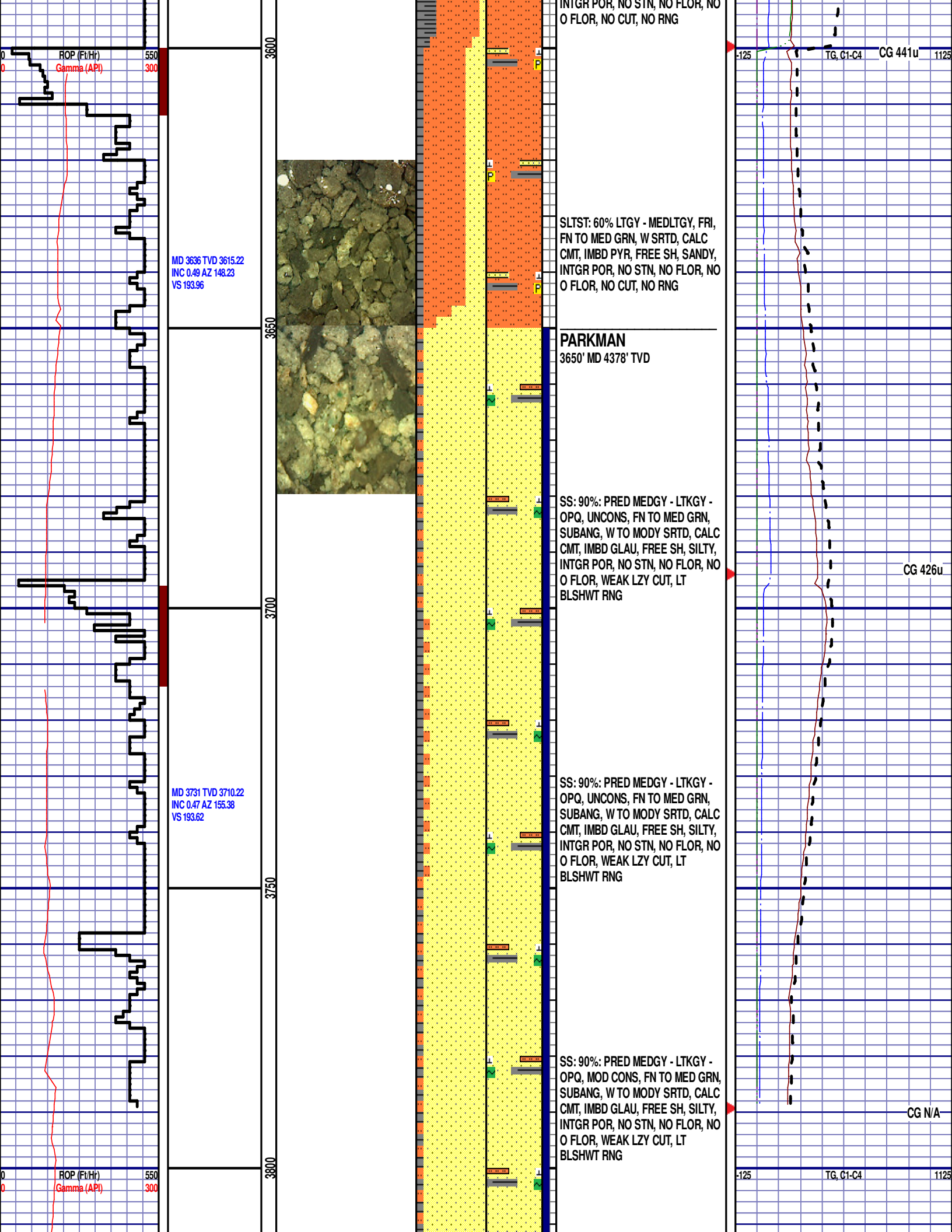
SLTST: 60% LTGY - MEDLTGY, FRI,
FN TO MED GRN, W SRTD, CALC
CMT, IMBD PYR, FREE SH, SANDY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

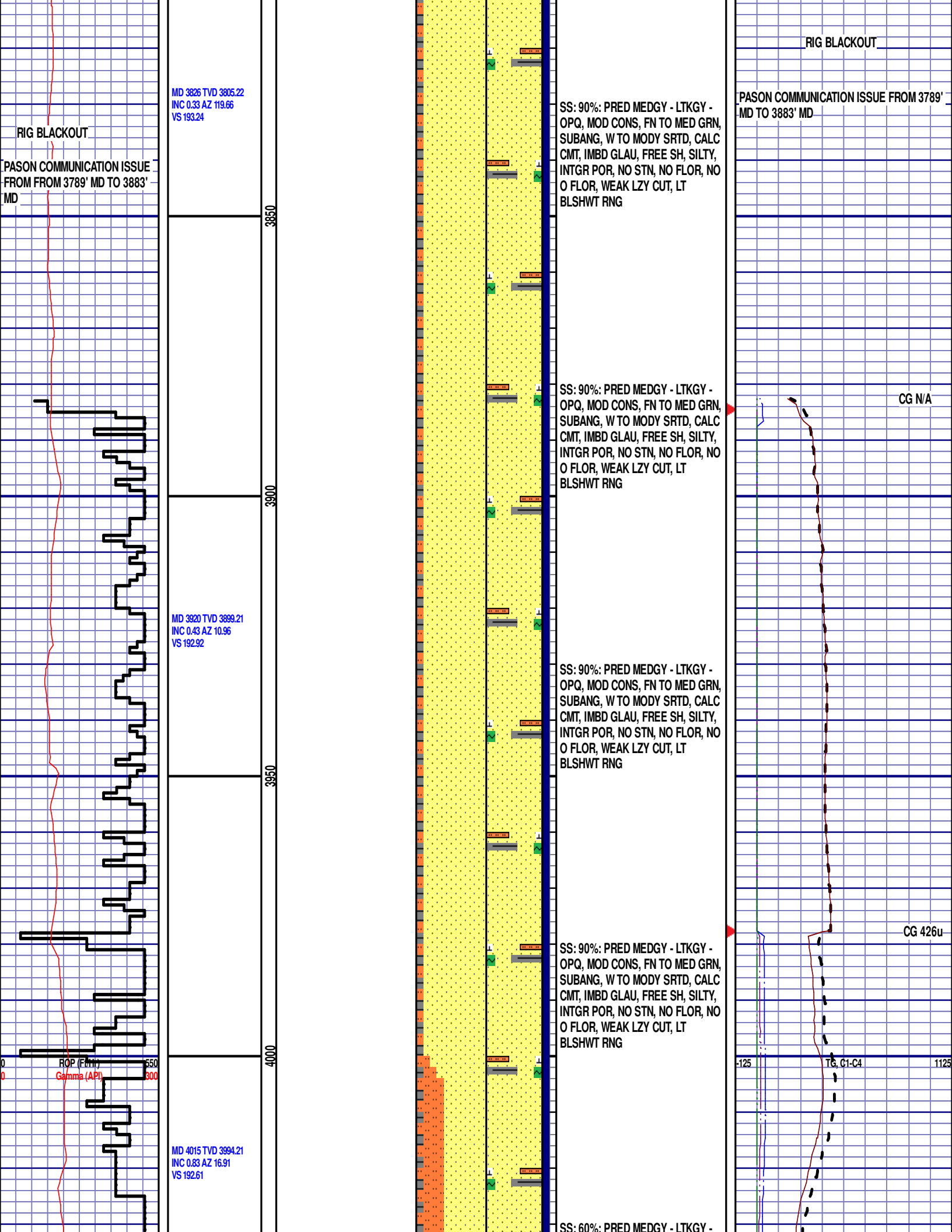
-125 TG, C1-C4 1125

CG 500u

CG N/A

PASON COMMUNICATION ISSUE
FROM 3503' MD TO 3531' MD





MD 3826 TVD 3805.22
INC 0.33 AZ 119.66
VS 193.24

MD 3920 TVD 3899.21
INC 0.43 AZ 10.96
VS 192.92

MD 4015 TVD 3994.21
INC 0.83 AZ 16.91
VS 192.61

SS: 90%: PRED MEDGY - LTKGY -
OPQ, MOD CONS, FN TO MED GRN,
SUBANG, W TO MODY SRTD, CALC
CMT, IMBD GLAU, FREE SH, SILTY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, WEAK LZY CUT, LT
BLSHWT RNG

SS: 90%: PRED MEDGY - LTKGY -
OPQ, MOD CONS, FN TO MED GRN,
SUBANG, W TO MODY SRTD, CALC
CMT, IMBD GLAU, FREE SH, SILTY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, WEAK LZY CUT, LT
BLSHWT RNG

SS: 90%: PRED MEDGY - LTKGY -
OPQ, MOD CONS, FN TO MED GRN,
SUBANG, W TO MODY SRTD, CALC
CMT, IMBD GLAU, FREE SH, SILTY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, WEAK LZY CUT, LT
BLSHWT RNG

SS: 90%: PRED MEDGY - LTKGY -
OPQ, MOD CONS, FN TO MED GRN,
SUBANG, W TO MODY SRTD, CALC
CMT, IMBD GLAU, FREE SH, SILTY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, WEAK LZY CUT, LT
BLSHWT RNG

SS: 60%: PRED MEDGY - LTKGY -

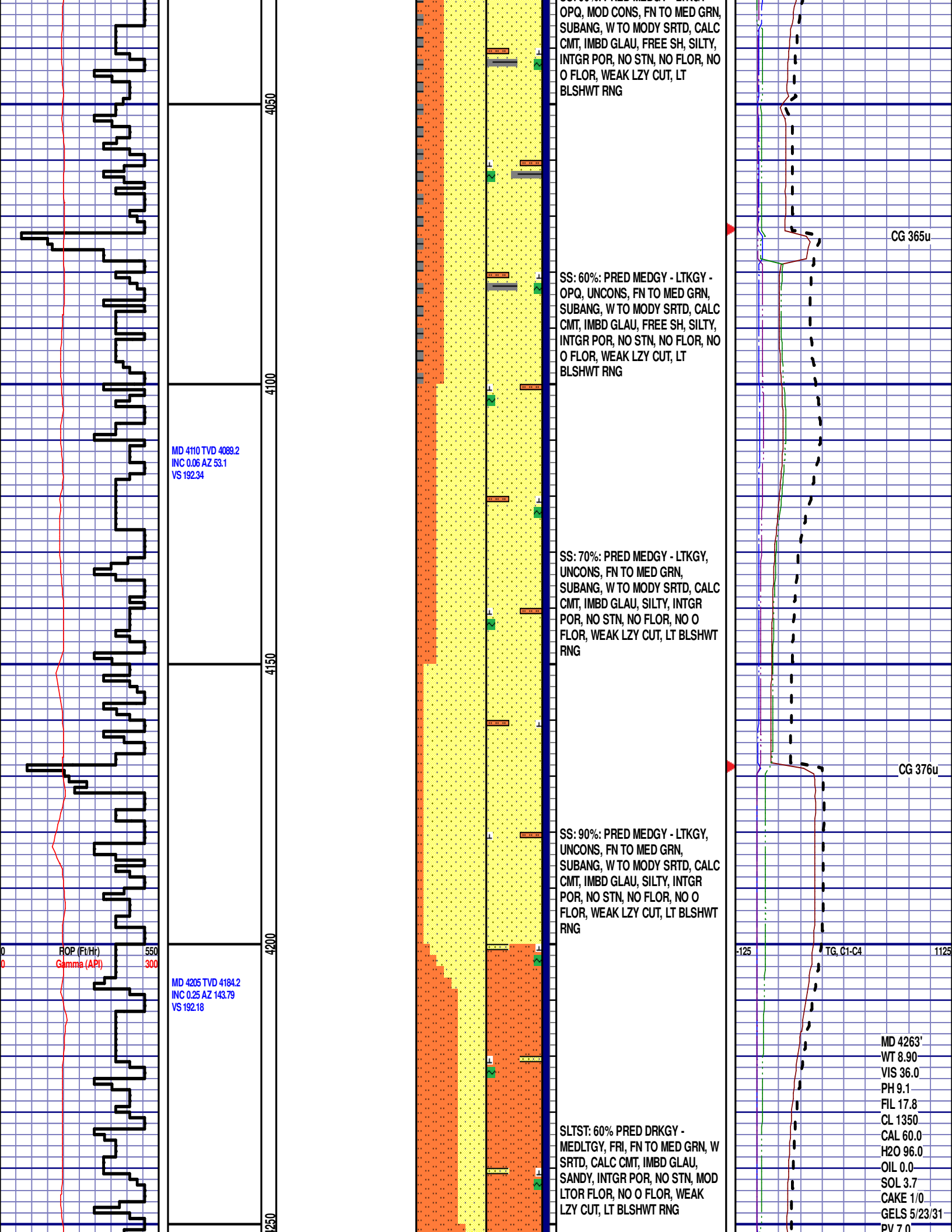
RIG BLACKOUT

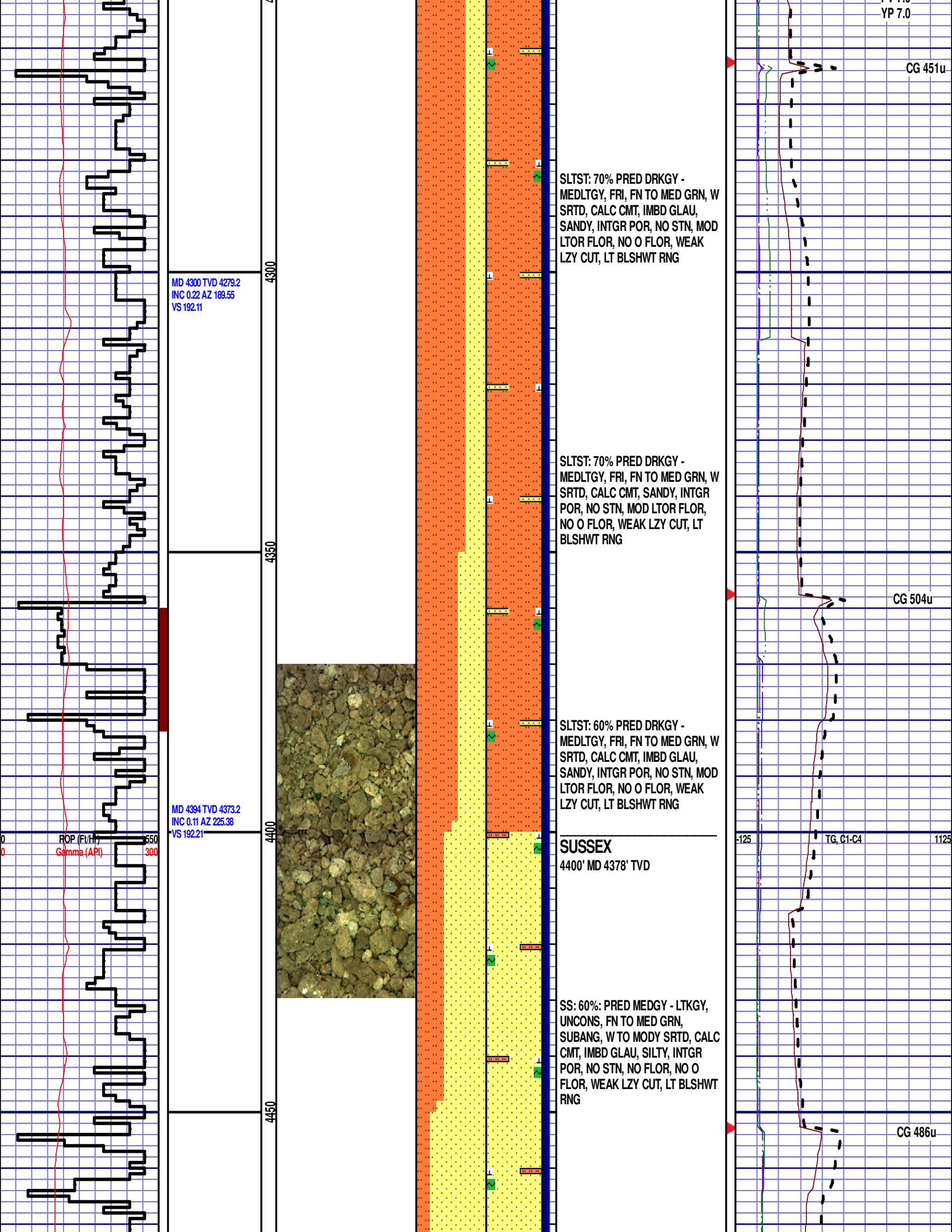
PASON COMMUNICATION ISSUE FROM 3789'
MD TO 3883' MD

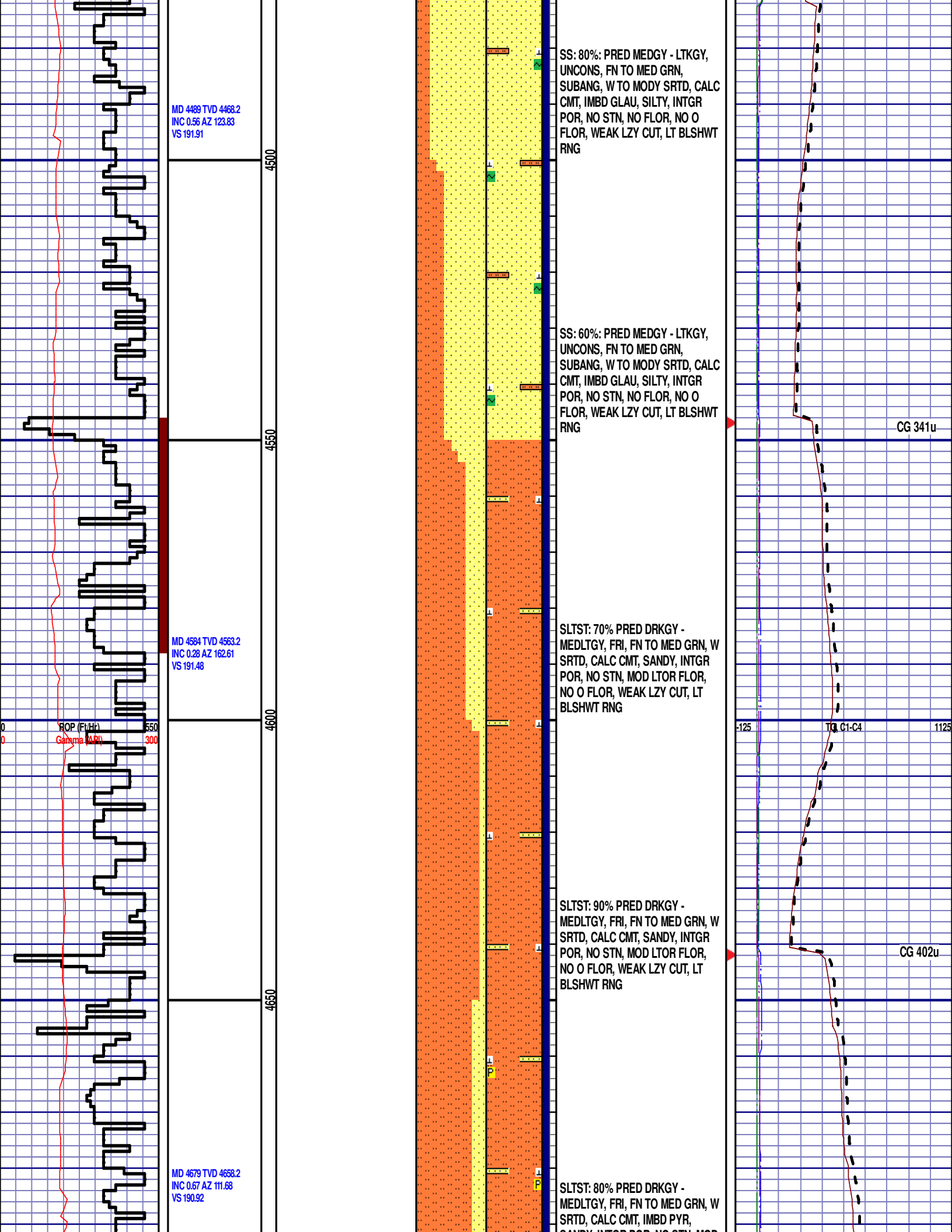
CG N/A

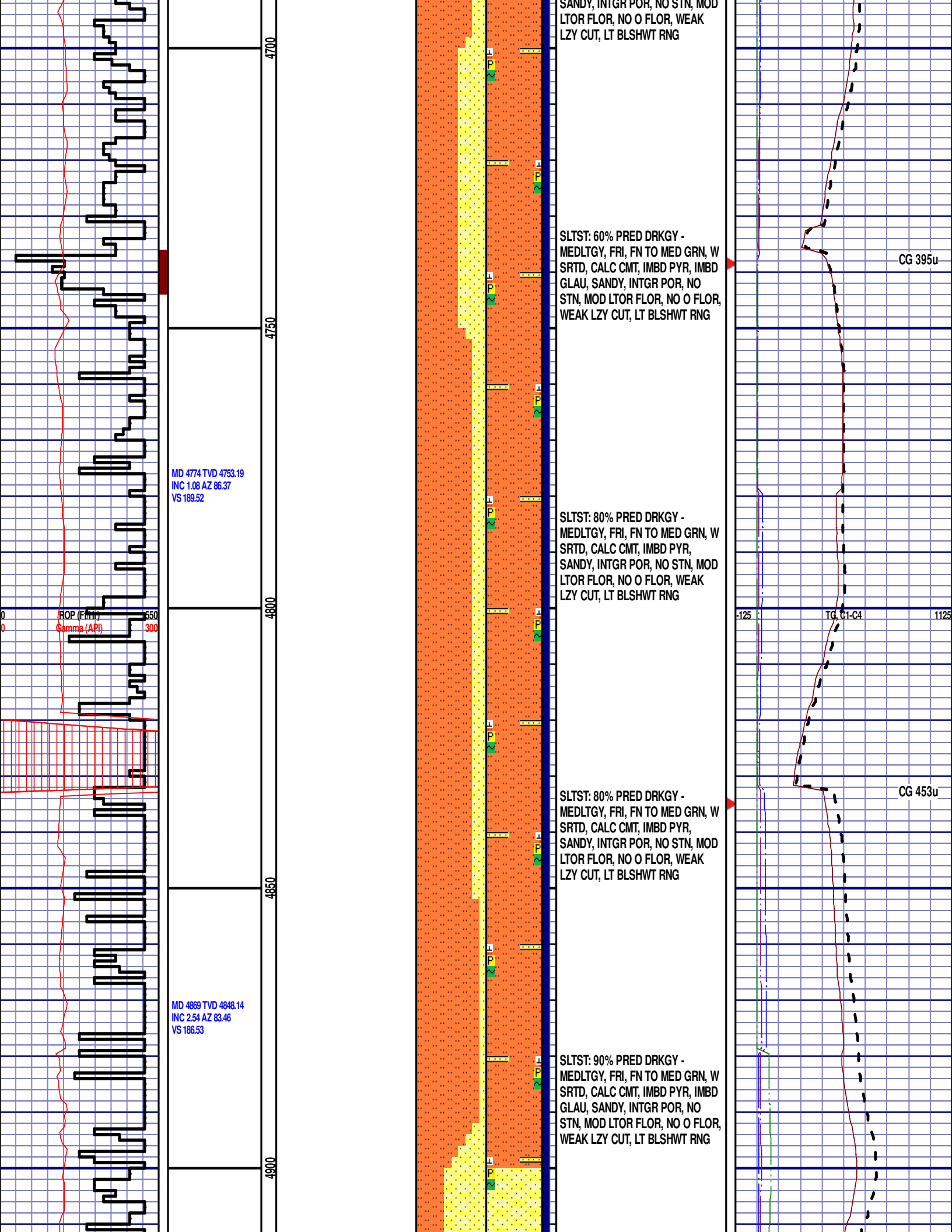
CG 426u

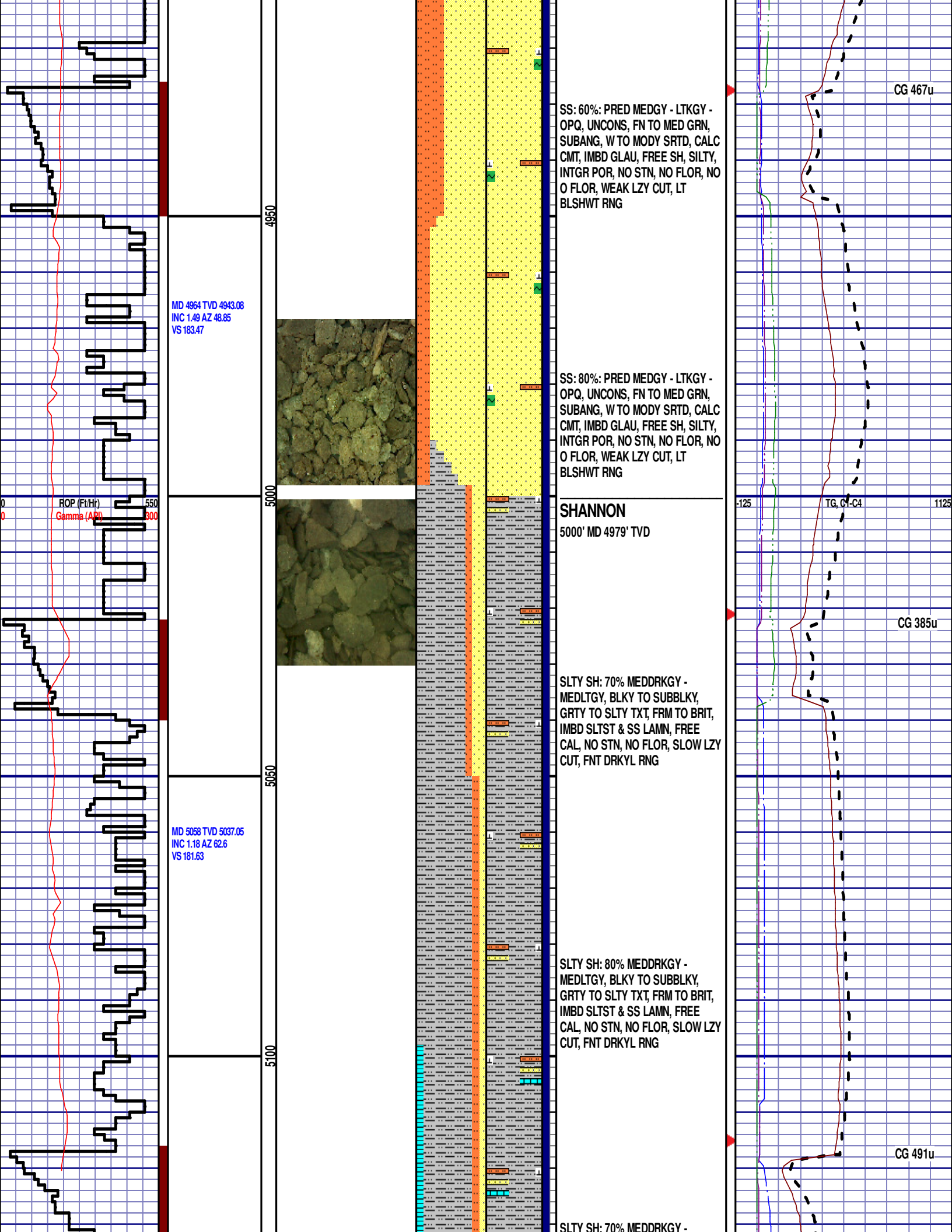
125 TG, C1-C4 1125

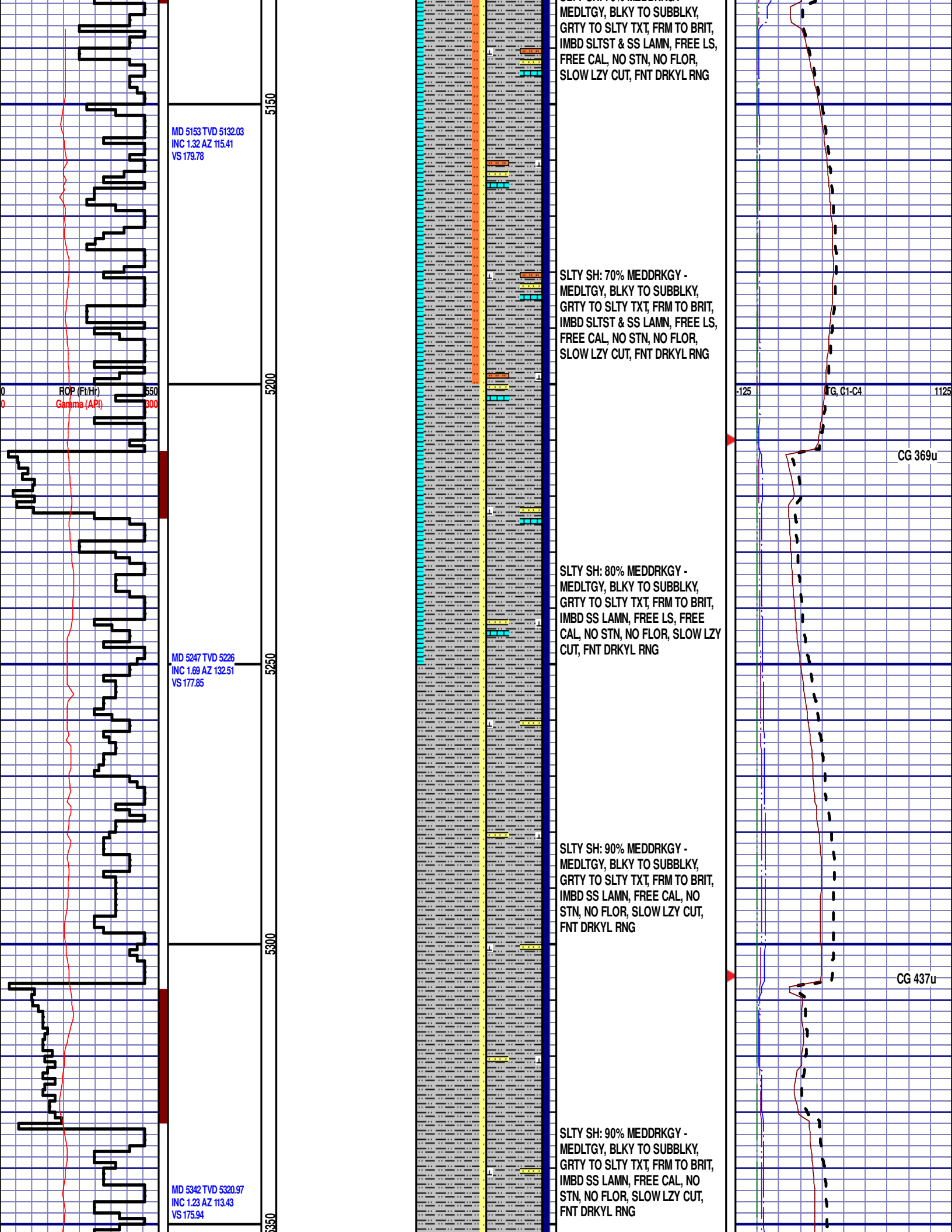


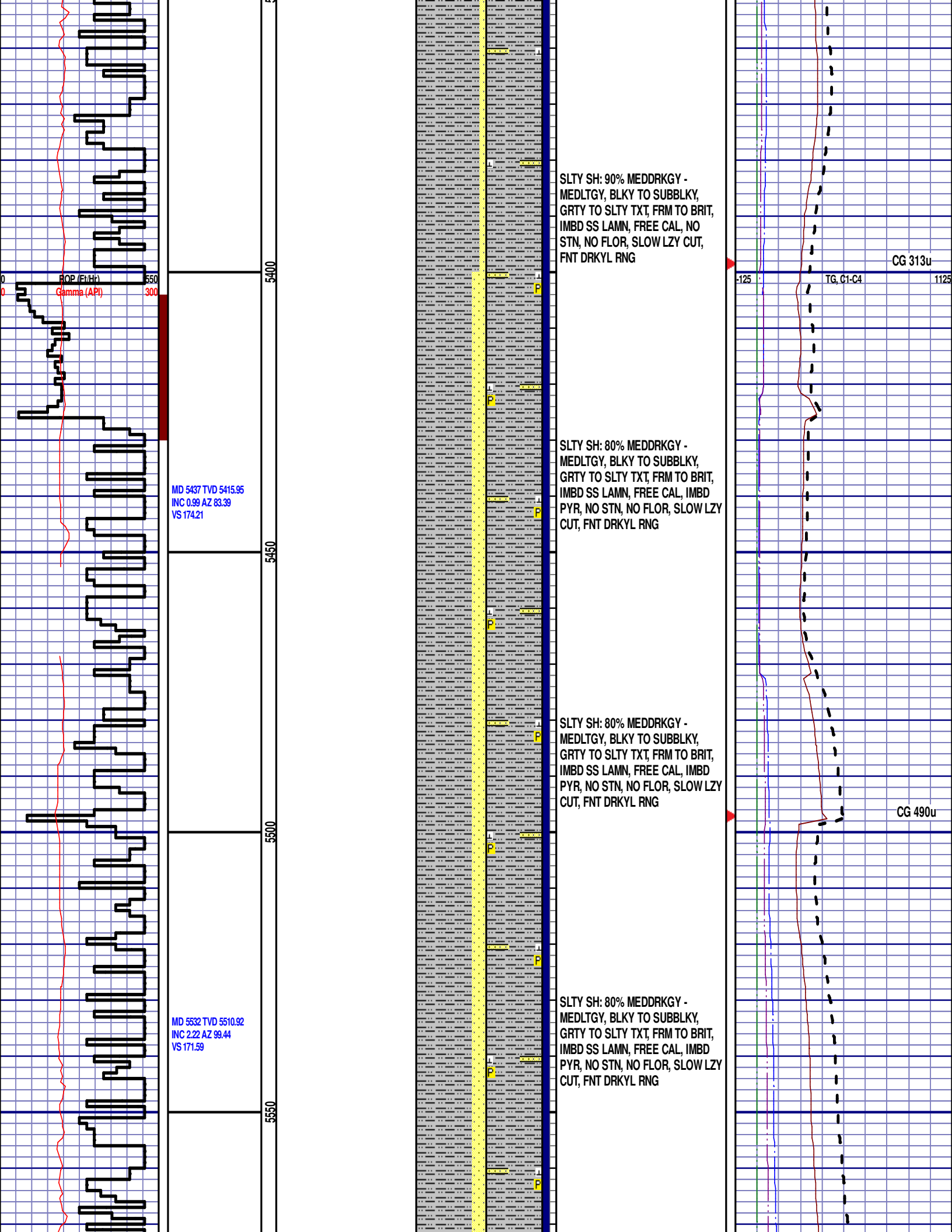


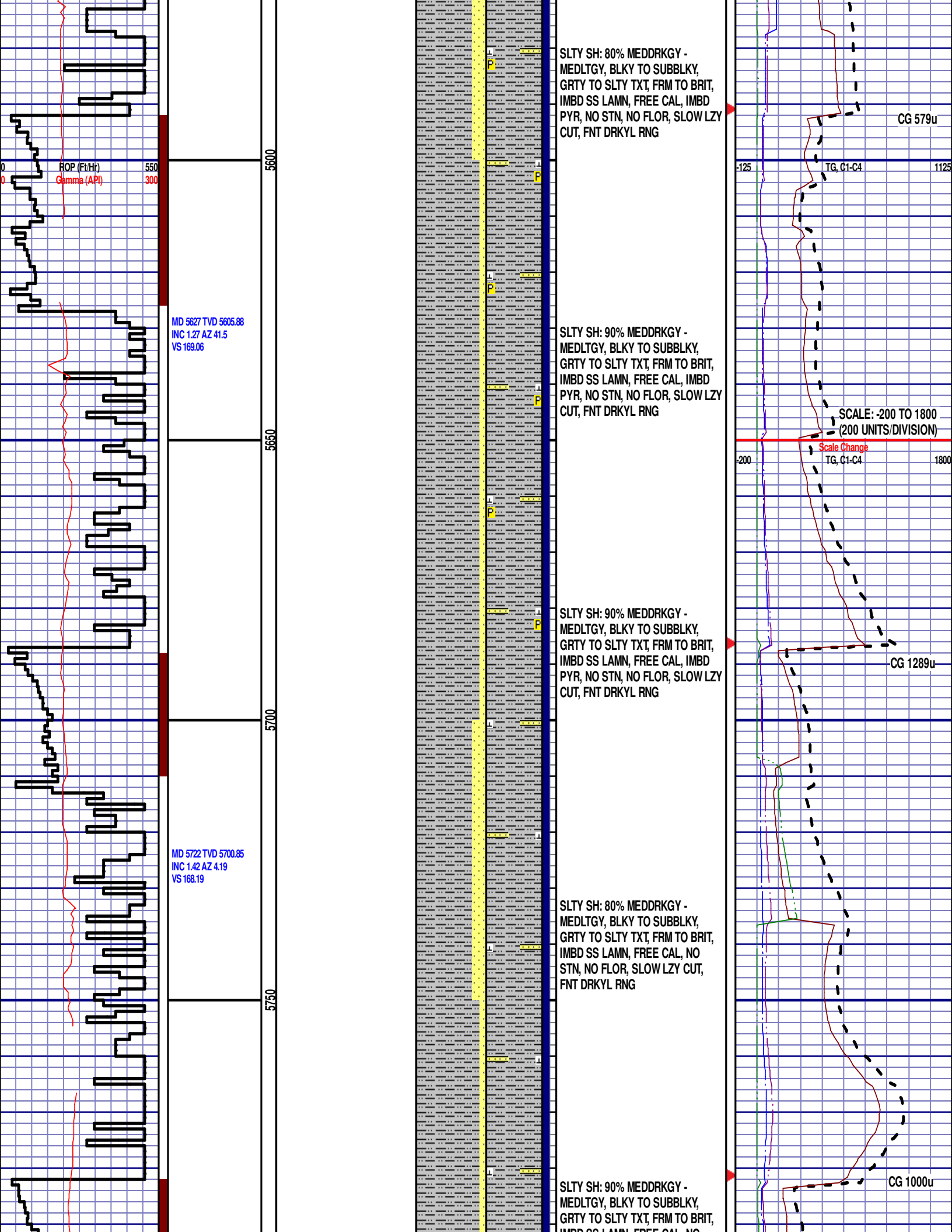












SLTY SH: 80% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SS LAMN, FREE CAL, IMBD
PYR, NO STN, NO FLOR, SLOW LZ
CUT, FNT DRKYL RNG

SLTY SH: 90% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SS LAMN, FREE CAL, IMBD
PYR, NO STN, NO FLOR, SLOW LZ
CUT, FNT DRKYL RNG

SLTY SH: 90% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SS LAMN, FREE CAL, IMBD
PYR, NO STN, NO FLOR, SLOW LZ
CUT, FNT DRKYL RNG

SLTY SH: 80% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SS LAMN, FREE CAL, NO
STN, NO FLOR, SLOW LZ CUT,
FNT DRKYL RNG

SLTY SH: 90% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SS LAMN, FREE CAL, NO

CG 579u

SCALE: -200 TO 1800
(200 UNITS/DIVISION)

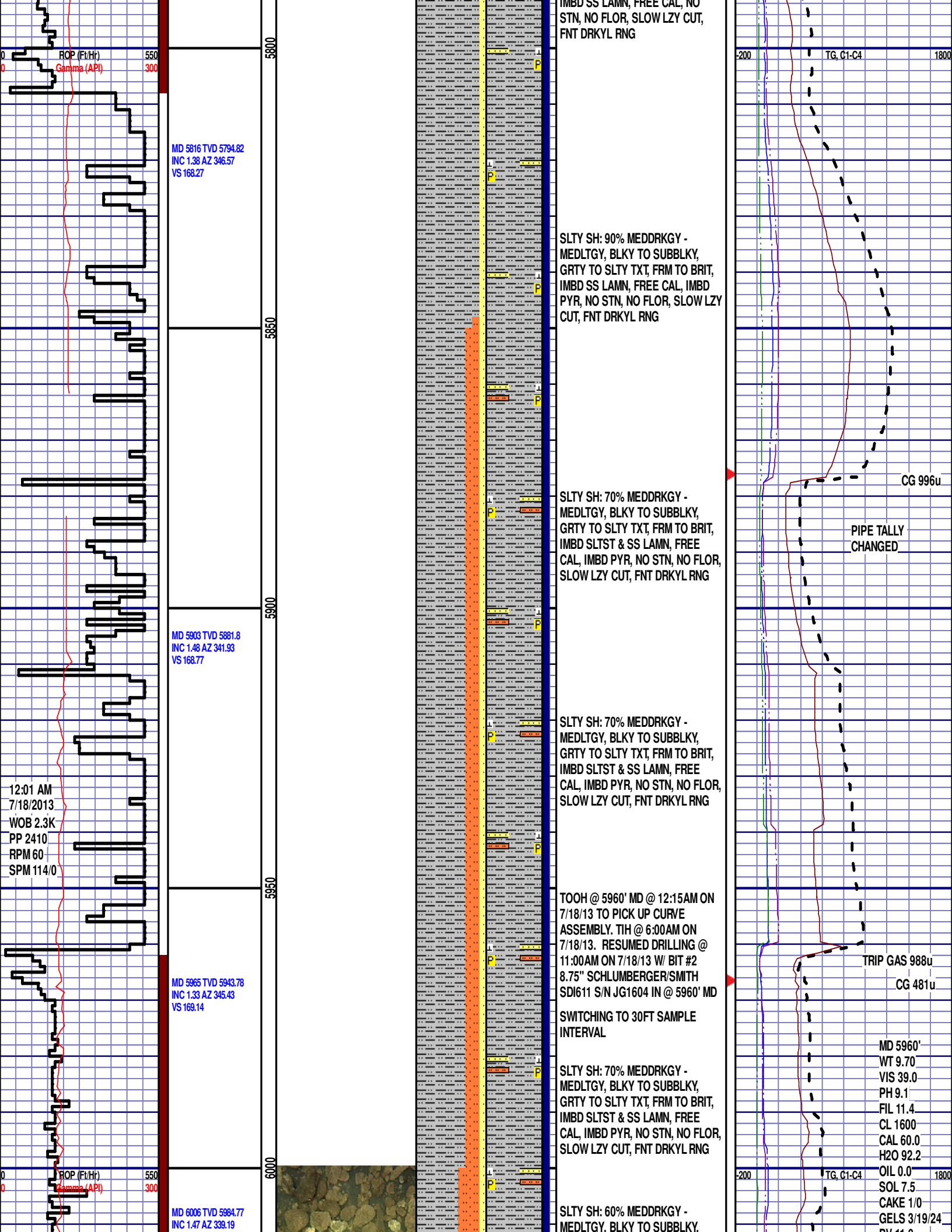
Scale Change
TG, C1-C4

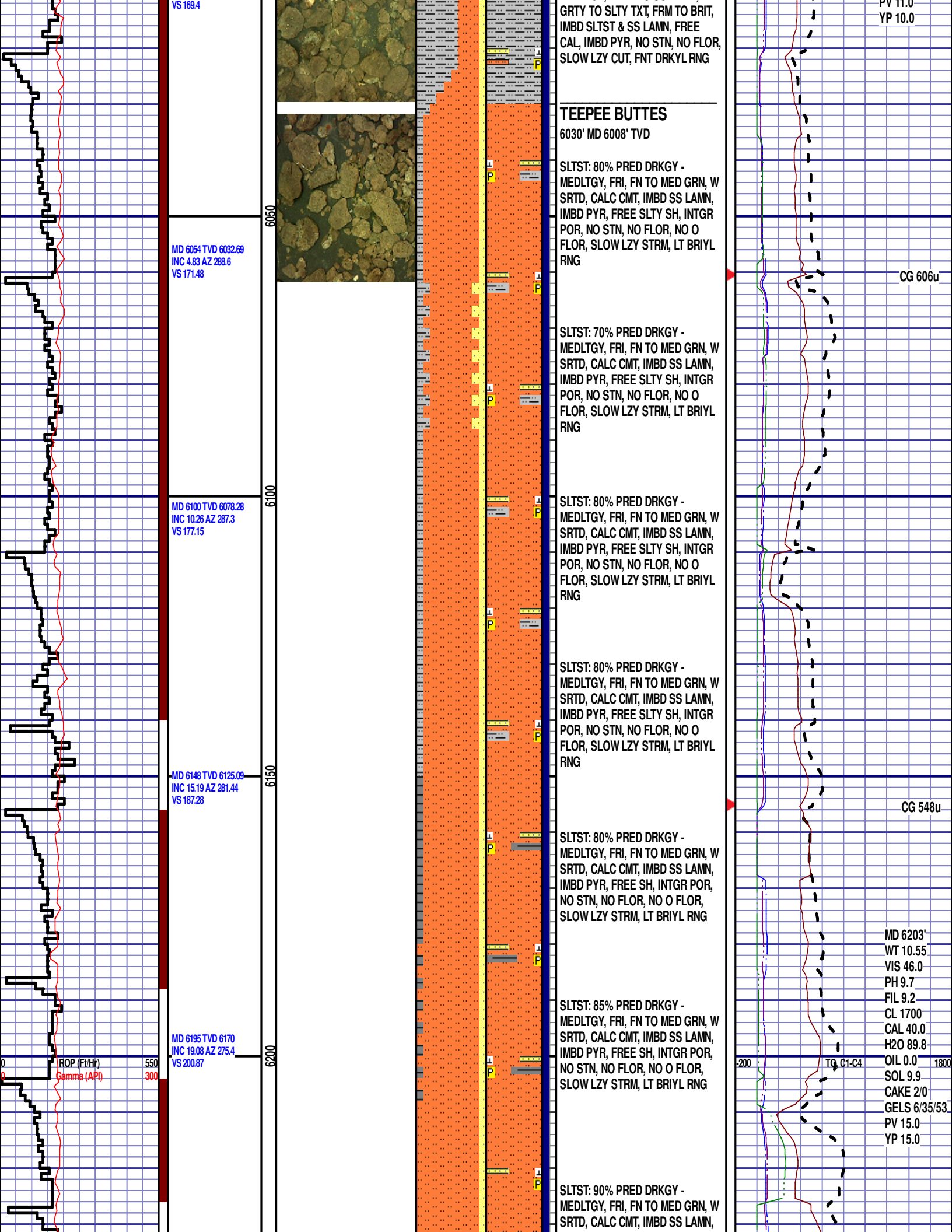
CG 1289u

CG 1000u

MD 5627 TVD 5605.88
INC 1.27 AZ 41.5
VS 169.06

MD 5722 TVD 5700.85
INC 1.42 AZ 4.19
VS 168.19





VS 169.4

MD 6054 TVD 6032.69
INC 4.83 AZ 288.6
VS 171.48

MD 6100 TVD 6078.28
INC 10.26 AZ 287.3
VS 177.15

MD 6148 TVD 6125.09
INC 15.19 AZ 281.44
VS 187.28

MD 6195 TVD 6170
INC 19.08 AZ 275.4
VS 200.87

GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SLTST & SS LAMN, FREE
CAL, IMBD PYR, NO STN, NO FLOR,
SLOW LZY CUT, FNT DRKYL RNG

TEEPEE BUTTES

6030' MD 6008' TVD

SLTST: 80% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, IMBD SS LAMN,
IMBD PYR, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, SLOW LZY STRM, LT BRIYL
RNG

SLTST: 70% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, IMBD SS LAMN,
IMBD PYR, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, SLOW LZY STRM, LT BRIYL
RNG

SLTST: 80% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, IMBD SS LAMN,
IMBD PYR, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, SLOW LZY STRM, LT BRIYL
RNG

SLTST: 80% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, IMBD SS LAMN,
IMBD PYR, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, SLOW LZY STRM, LT BRIYL
RNG

SLTST: 80% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, IMBD SS LAMN,
IMBD PYR, FREE SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
SLOW LZY STRM, LT BRIYL RNG

SLTST: 85% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, IMBD SS LAMN,
IMBD PYR, FREE SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
SLOW LZY STRM, LT BRIYL RNG

SLTST: 90% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, IMBD SS LAMN,

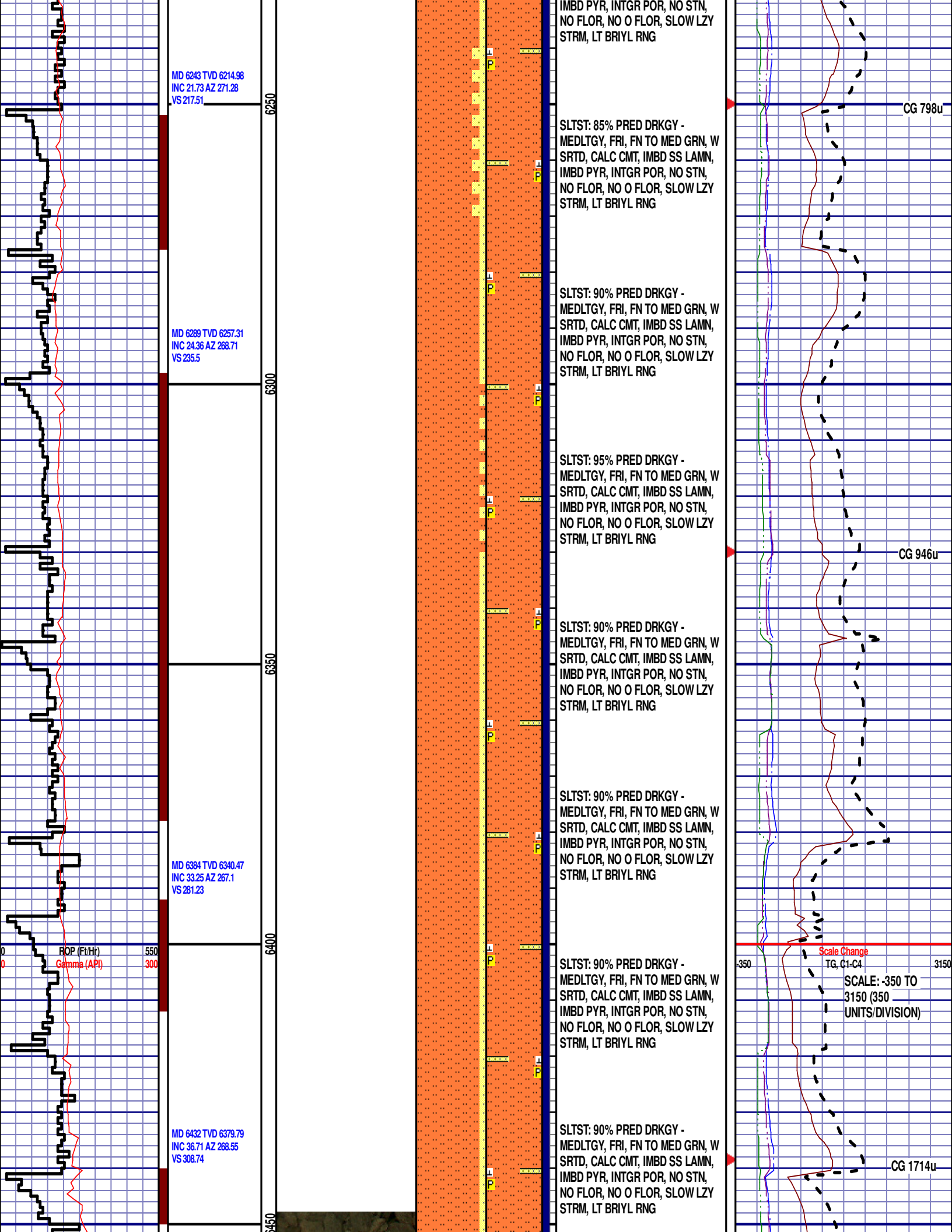
PV 11.0
YP 10.0

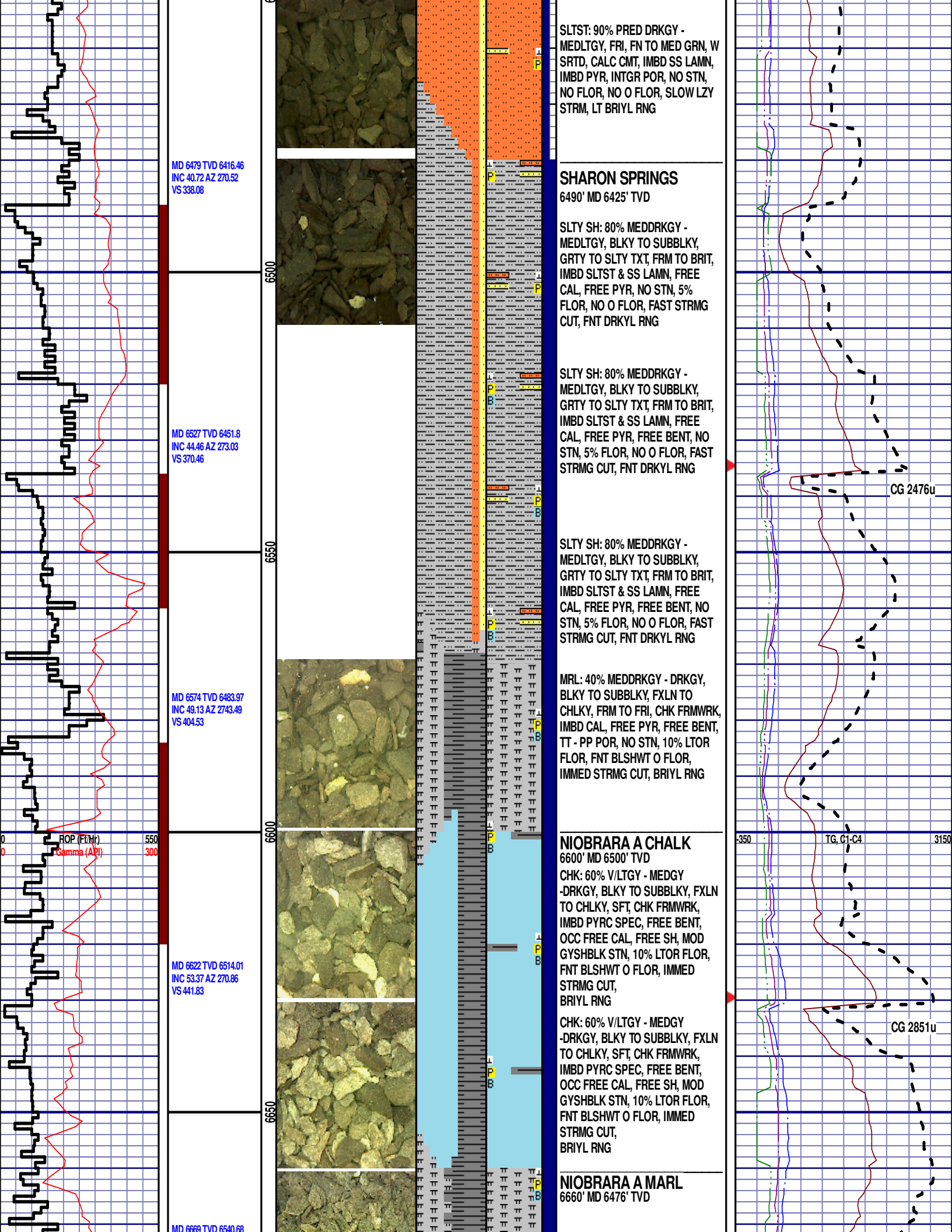
CG 606u

CG 548u

MD 6203'
WT 10.55
VIS 46.0
PH 9.7
FIL 9.2
CL 1700
CAL 40.0
H2O 89.8
OIL 0.0
SOL 9.9
CAKE 2/0
GELS 6/35/53
PV 15.0
YP 15.0

TG C1-C4

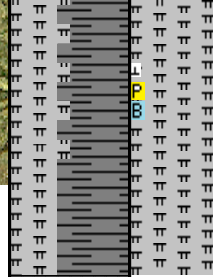




INC 57.5 AZ 266.82
VS 480.5

6700

50



MRL: 45% MEDDRKGY - DRKGY,
BLKY TO SUBBLKY, FXLN TO
CHLKY, FRM TO FRI, CHK FRMWRK,
IMBD CAL, FREE PYR, FREE BENT,
TT - PP POR, NO STN, 10% LTOR
FLOR, FNT BLSHWT O FLOR,
IMMED STRMG CUT, BRIYL RNG

END OF VERTICAL LOG @ 6700'
MD ON 7/19/13, CONTINUED ON
HORIZONTAL LOG

