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fax 866.534.4559

WWW.HZMUD.COM

Customer Information

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

Geologist: Cassidy Miller
Noble Energy Inc

Mud Logging Details

Logger: Ryan Bleess & Casey
Sensecqua
Log Interval: 2500' MD to 6800' MD
Start Date: June 10, 2013
Release Date: June 16, 2013

Well Information

Well Name: Wells Ranch AE05-67HN

Location: 6-6N-62W
1374' FNL, 65' FEL

County: Weld
State: Colorado

Drilling Rig: H&P 321
Total Depth: 11166' MD
TD Date: June 16, 2013
Formation: Niobrara C Chalk
KB Elevation: 4963'
GR Elevation: 4933'
API Number: 05-123-36977

ROCK TYPES

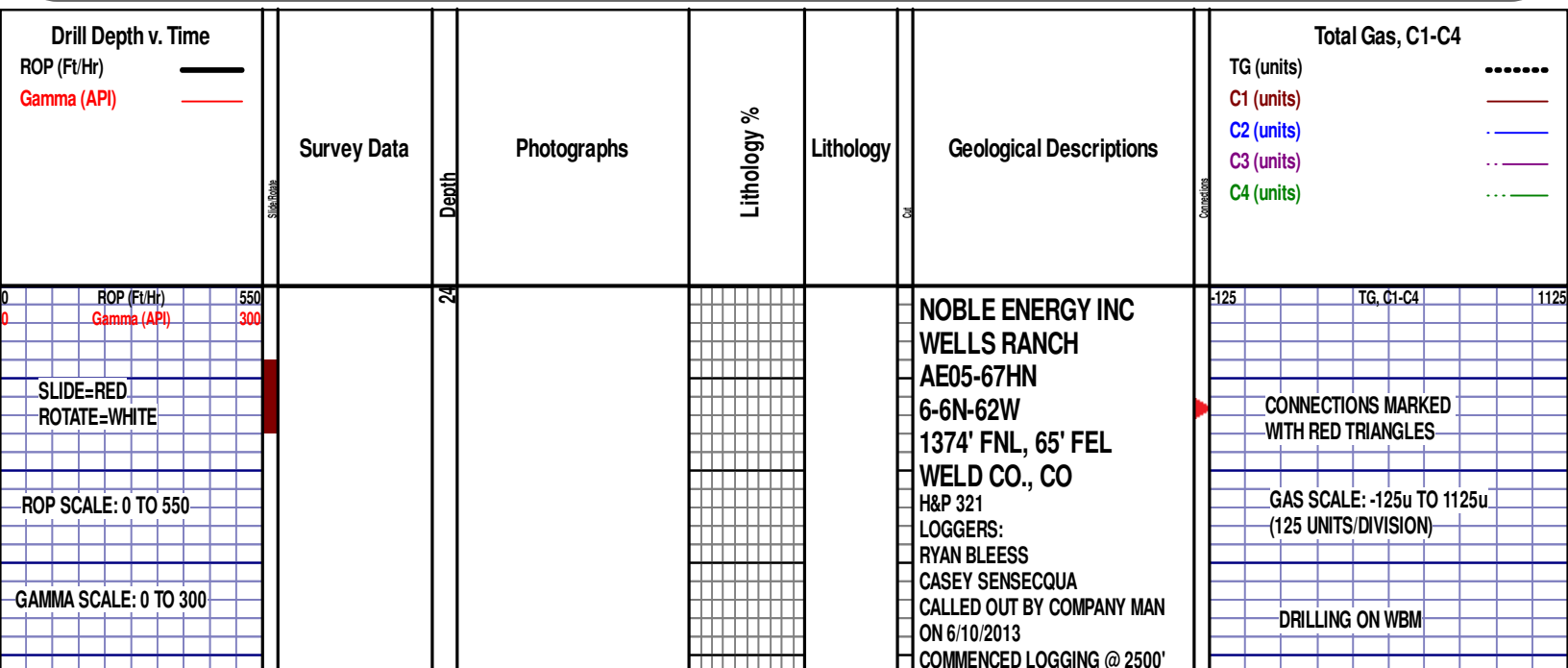
Anhy
 Bent
 Brec
 Cht
 Clyst
 Coal
 Congl

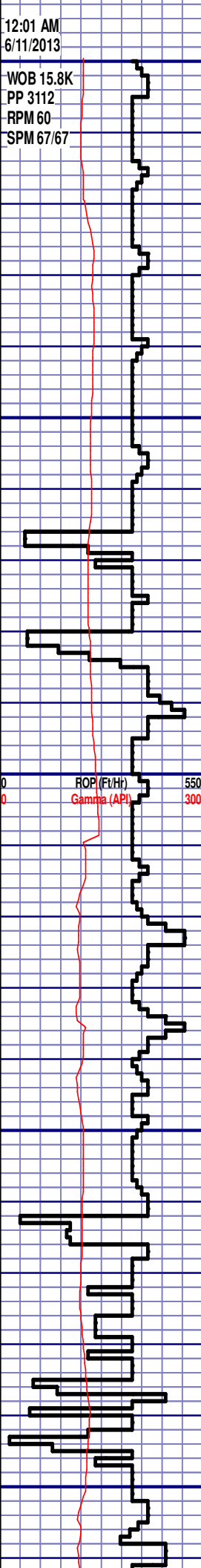
Dol
 Gyp
 Igne
 Chk
 Lmst
 Meta
 Mrlst

Salt
 Shale
 Shcol
 Siltysh
 Siltst
 Ss
 Till

gw
 lmywash
 ogw
 olmywash
 oshly gw
 shly gw
 sdygw

hvycrbsh
 NO SMPL
 Lsdetrst
 sltst
 sdy sh
 Cement

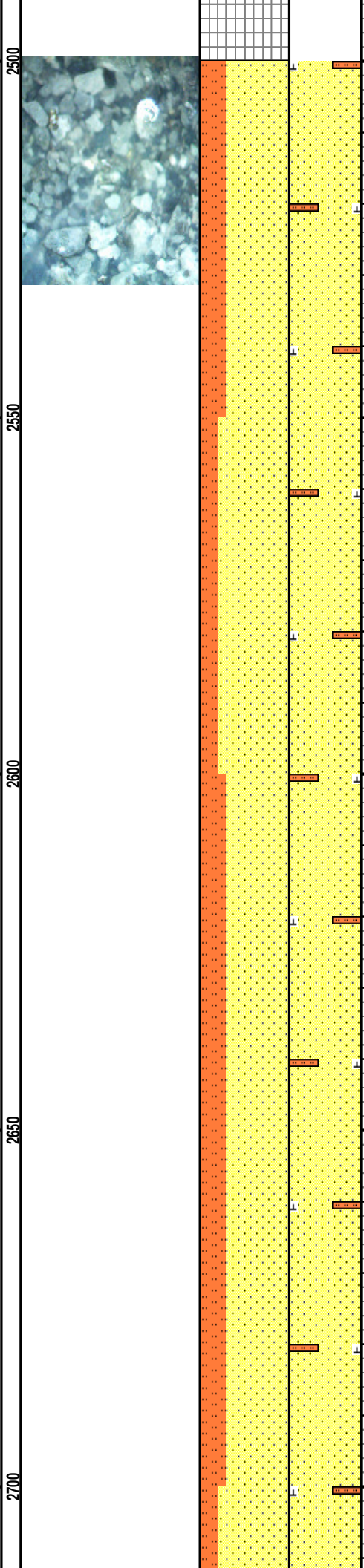




MD 2506 TVD 2505.96
INC 1.05 AZ 49.43
VS 1.35

MD 2601 TVD 2600.93
INC 1.92 AZ 48.62
VS 3026

MD 2696 TVD 2695.78
INC 4.3 AZ 62.92
VS 7.72



MD @ 5:30PM ON 6/11/2013 W/BIT
#1 8.75" SMITH MDIZ516 S/N
JG9378 IN @ 631' MD

PIERRE

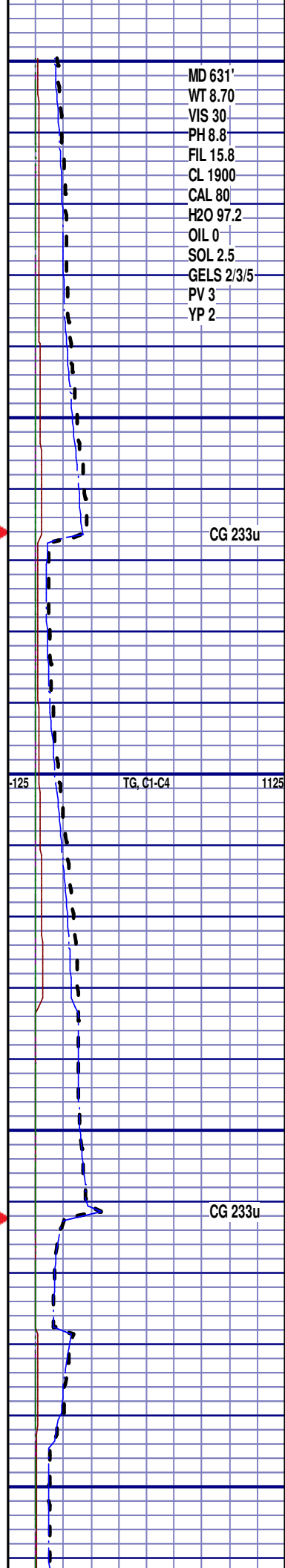
CAME IN BEFORE LOGGING
DEPTH

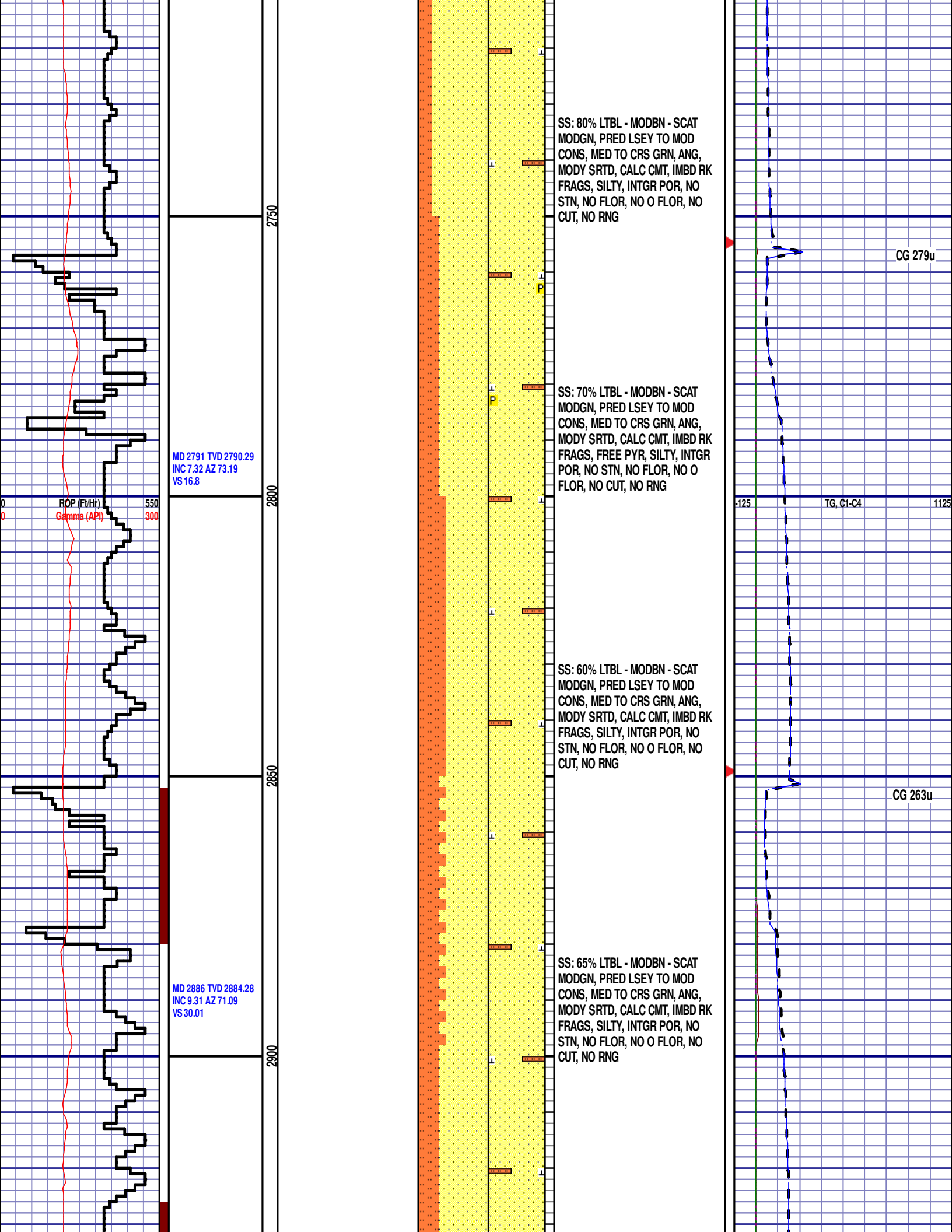
SS: 70% LTBL - MODBN - SCAT
MODGN, PRED LSEY TO MOD
CONS, MED TO CRS GRN, ANG,
MODY SRTD, CALC CMT, SILTY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

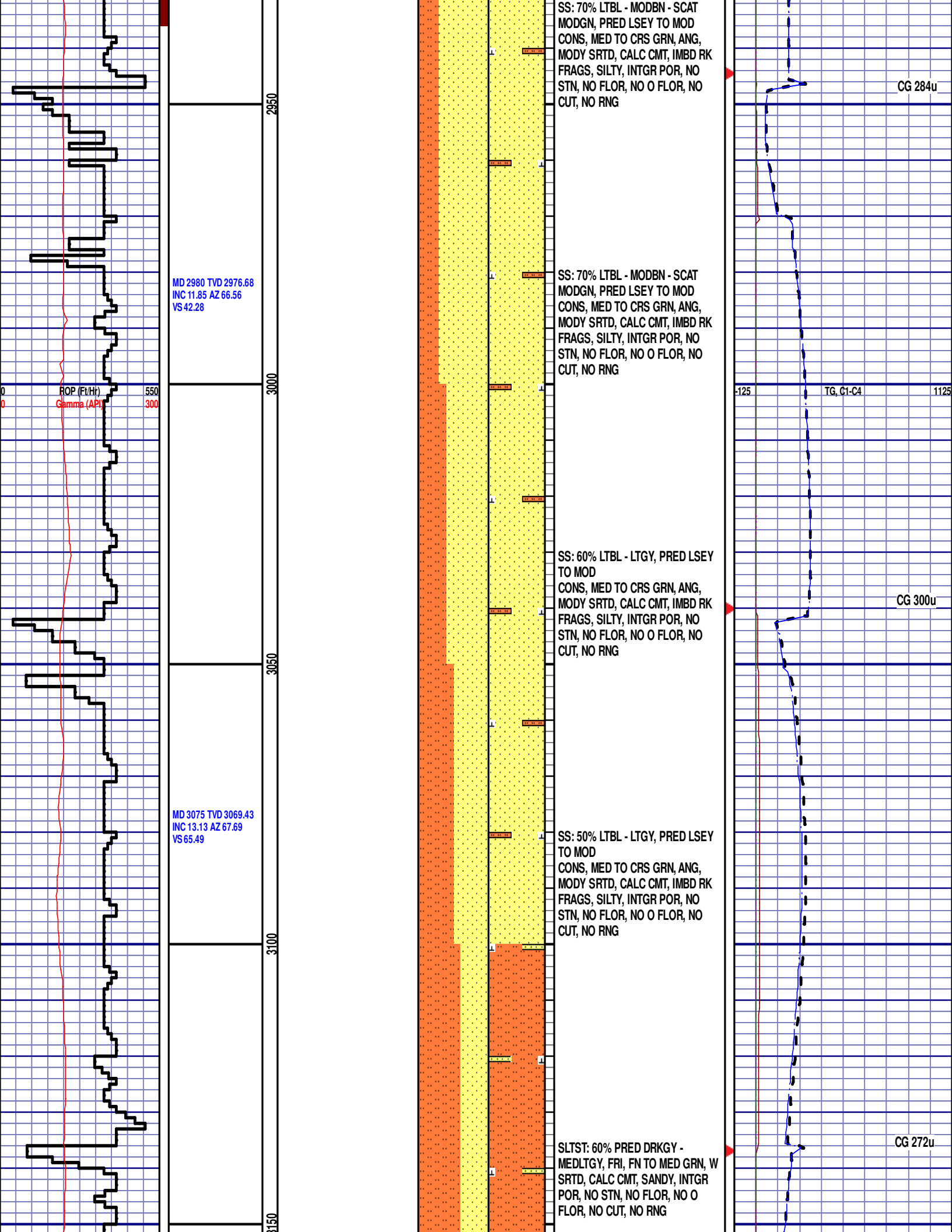
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MODGN, PRED LSEY TO MOD
CONS, MED TO CRS GRN, ANG,
MODY SRTD, CALC CMT, SILTY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

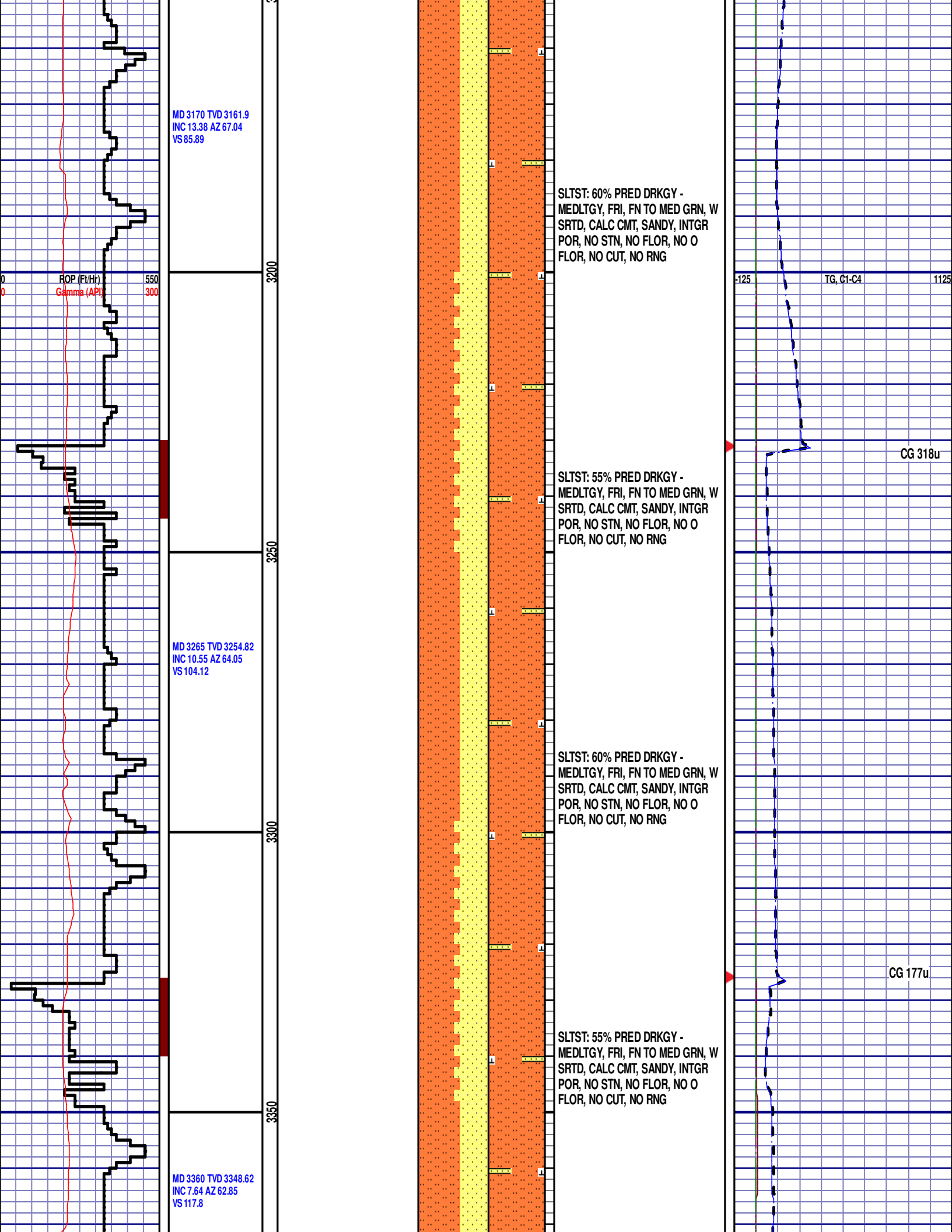
SS: 70% LTBL - MODBN - SCAT
MODGN, PRED LSEY TO MOD
CONS, MED TO CRS GRN, ANG,
MODY SRTD, CALC CMT, SILTY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

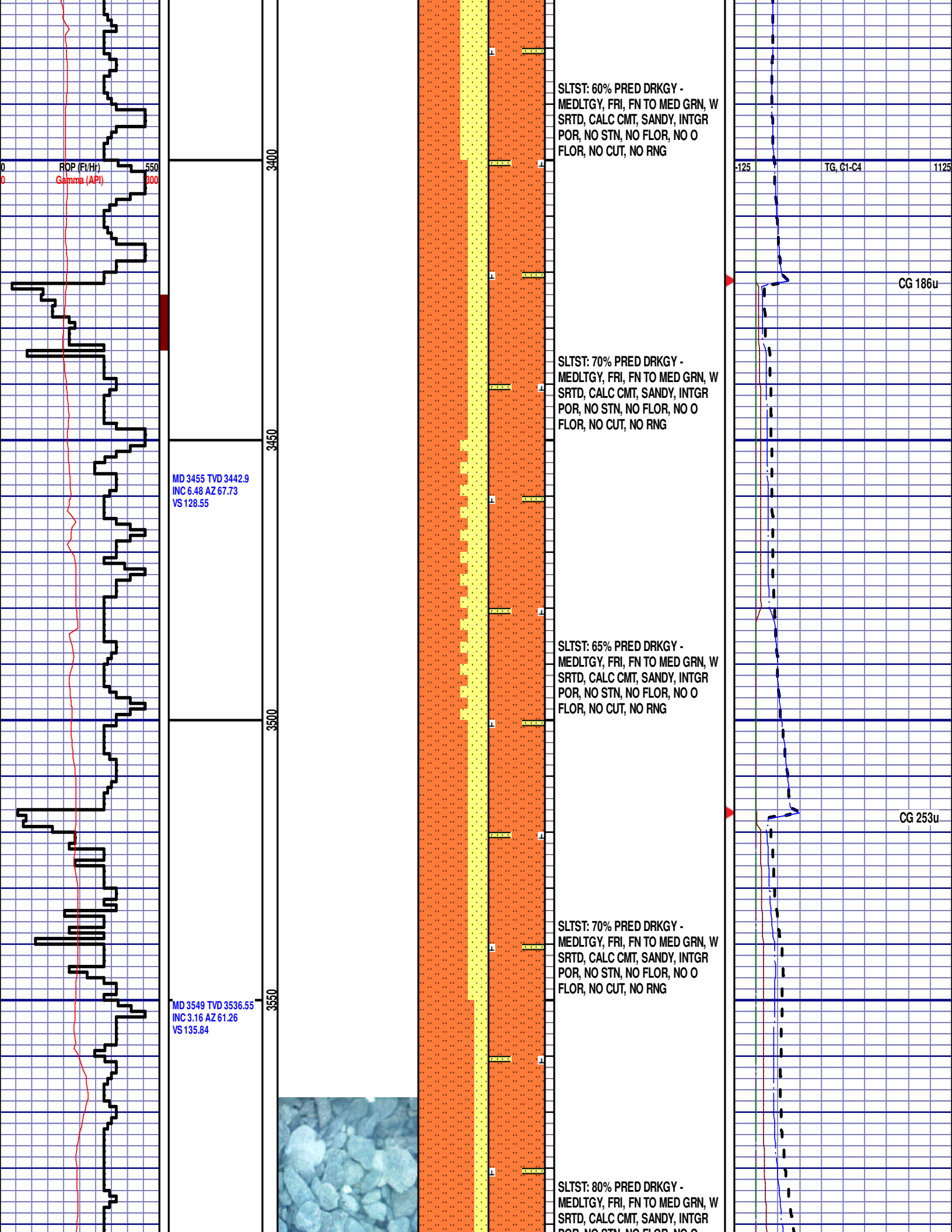
SS: 70% LTBL - MODBN - SCAT
MODGN, PRED LSEY TO MOD
CONS, MED TO CRS GRN, ANG,
MODY SRTD, CALC CMT, IMBD RK
FRAGS, SILTY, INTGR POR, NO
STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

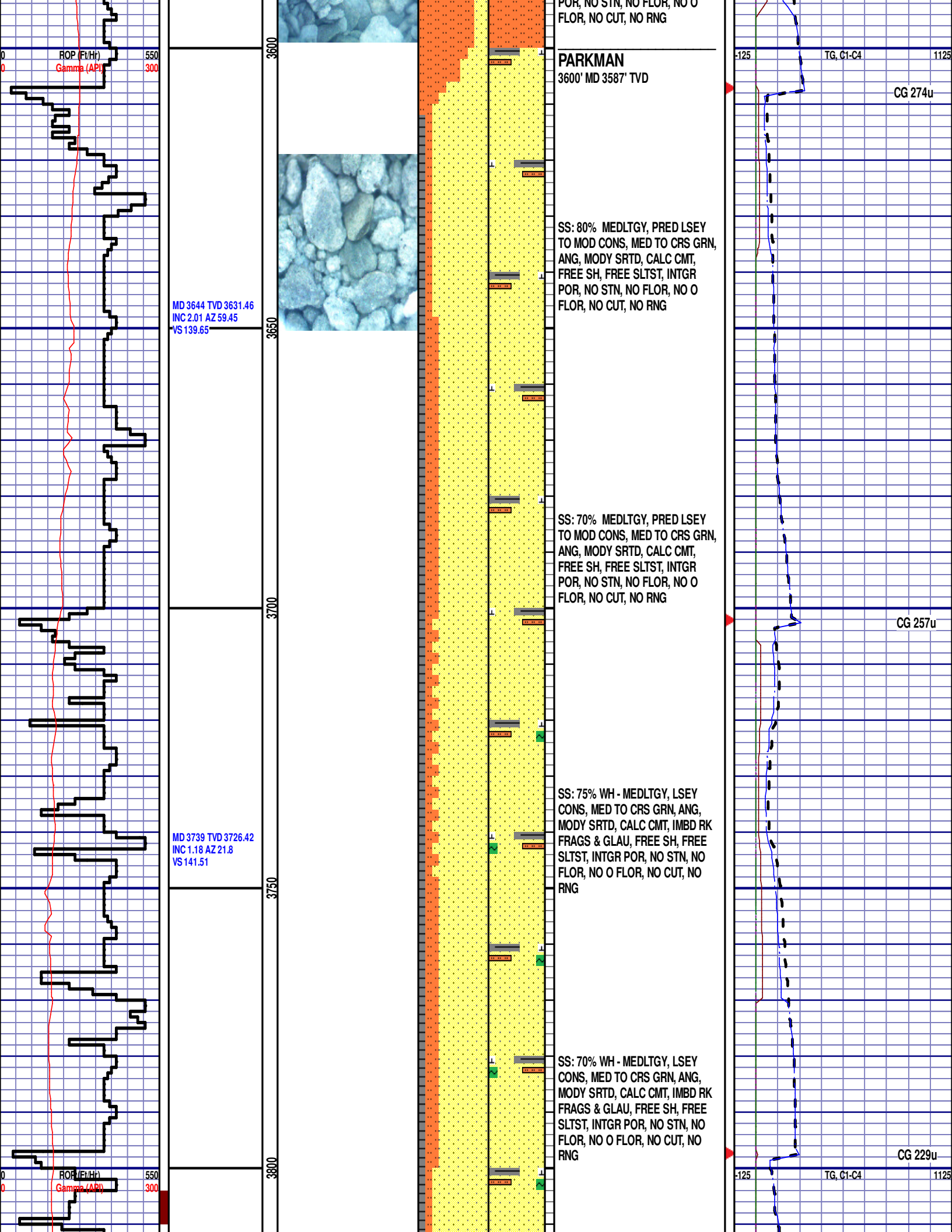


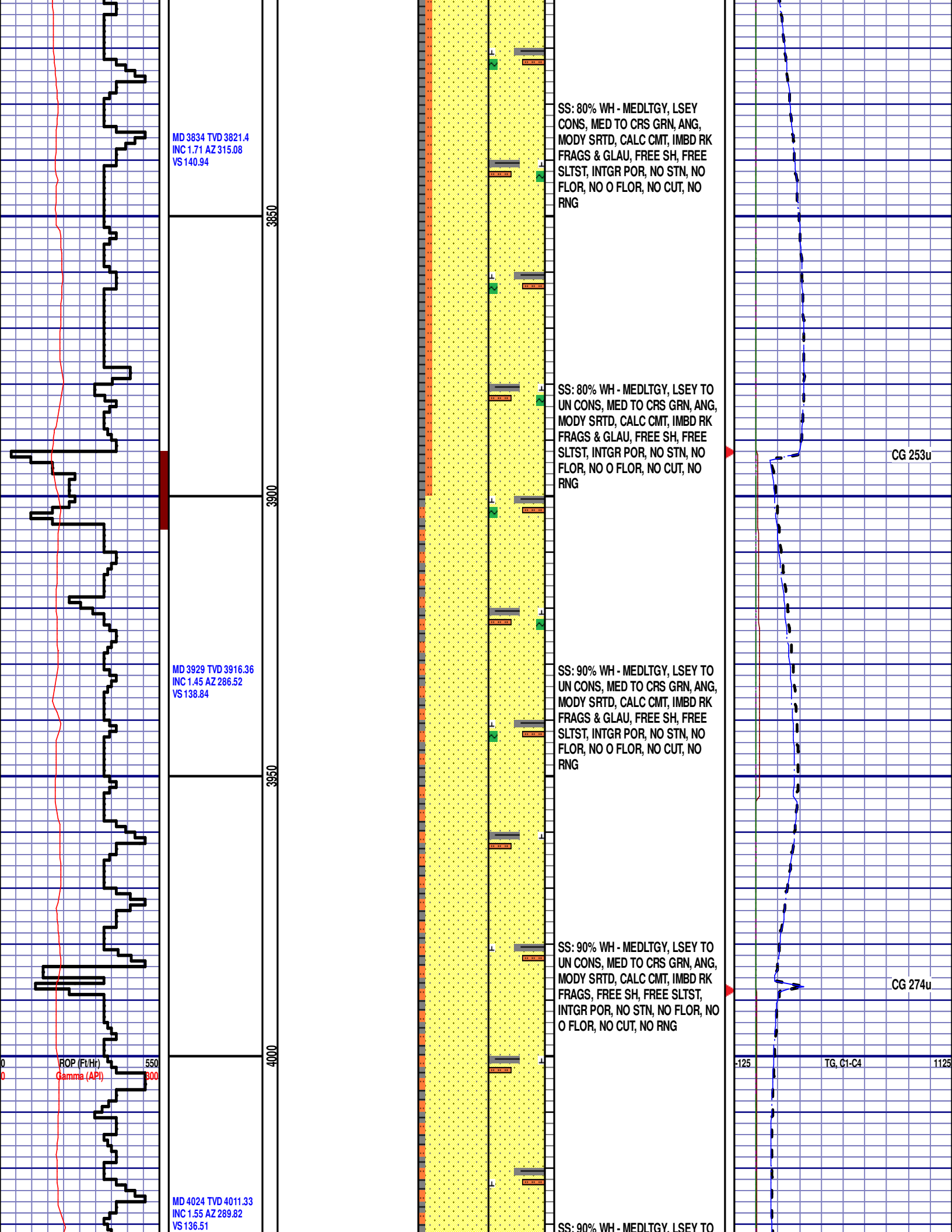


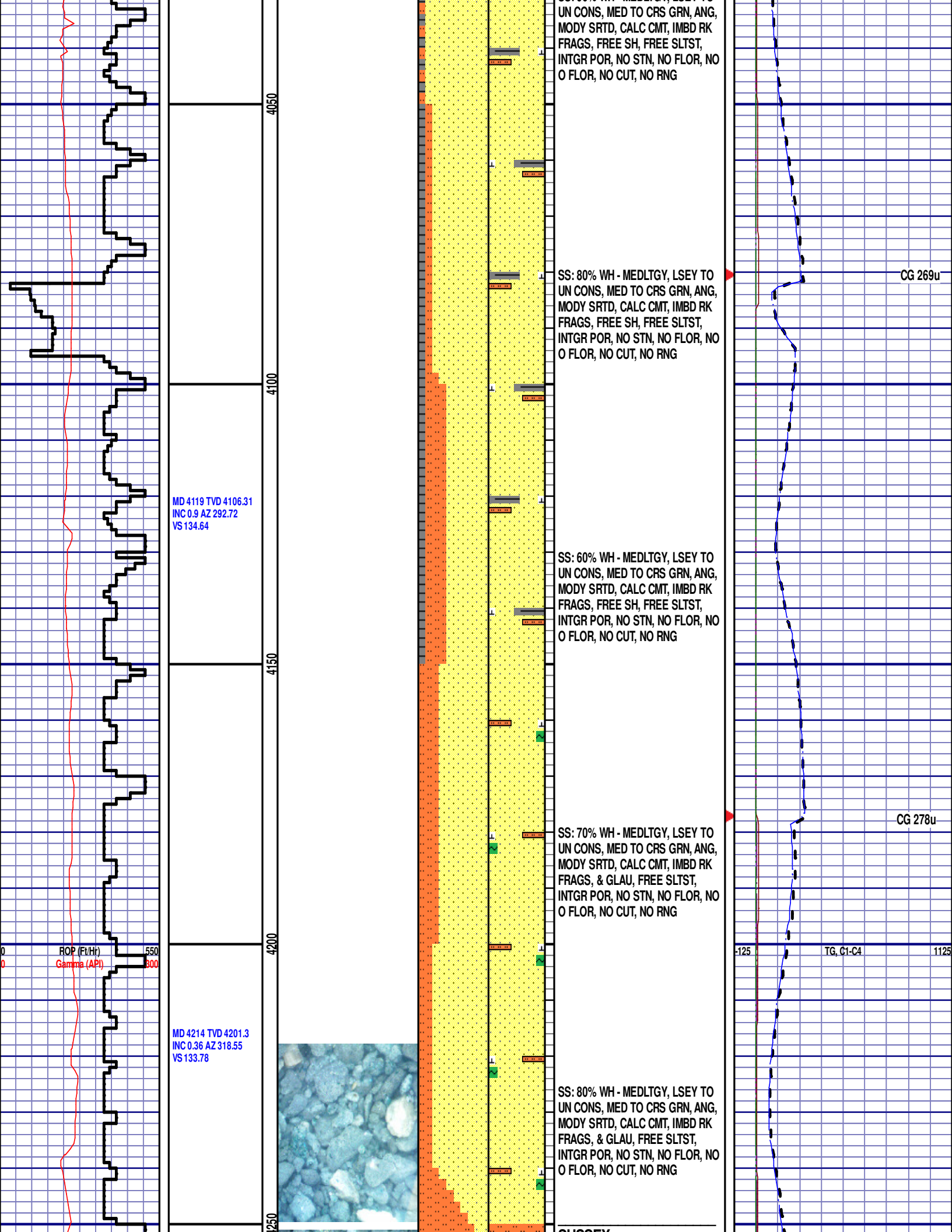












SUSSEX
4250' MD 4237' TVD

CG 185u

SLTST: 80% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

SLTST: 90% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

CG 217u

SLTST: 80% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

SLTST: 70% PRED DRKGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

CG N/A

NO GAS DATA
FROM 4370' MD
TO 4510' MD

MD 4309 TVD 4296.3
INC 0.57 AZ 303.75
VS 133.21

MD 4403 TVD 4390.29
INC 1.02 AZ 343.37
VS 132.62

12:01 AM
6/12/2013

WOB 25K
PP 2886
RPM 60
SPM 65/64

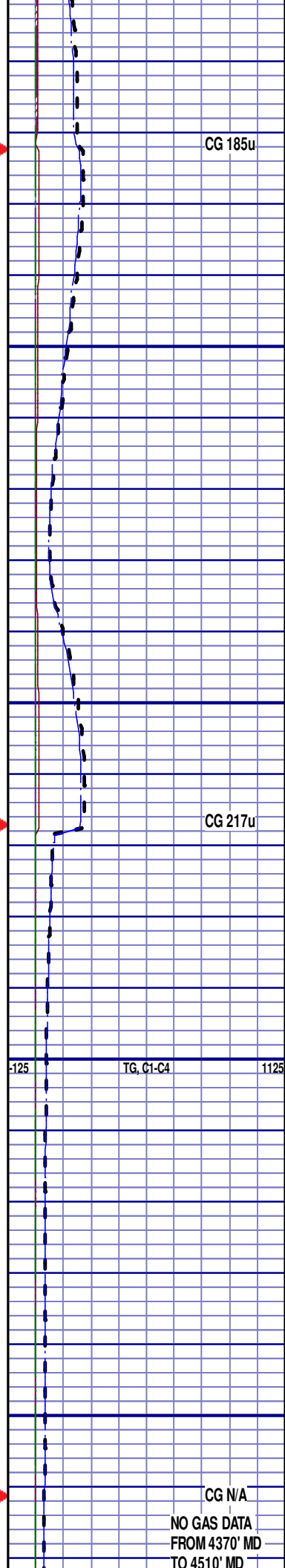
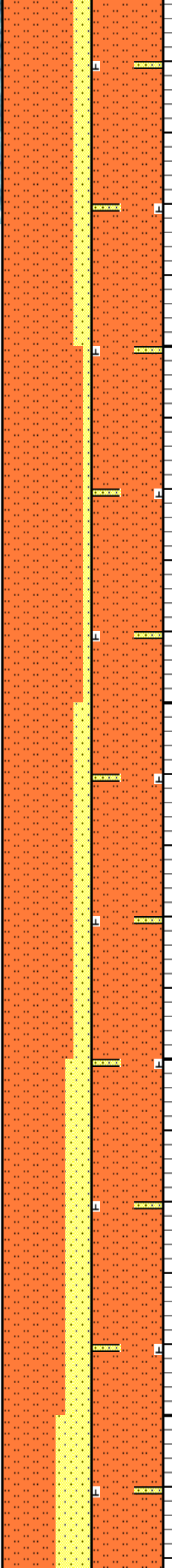
ROP (Ft/Hr)
Gamma (API)

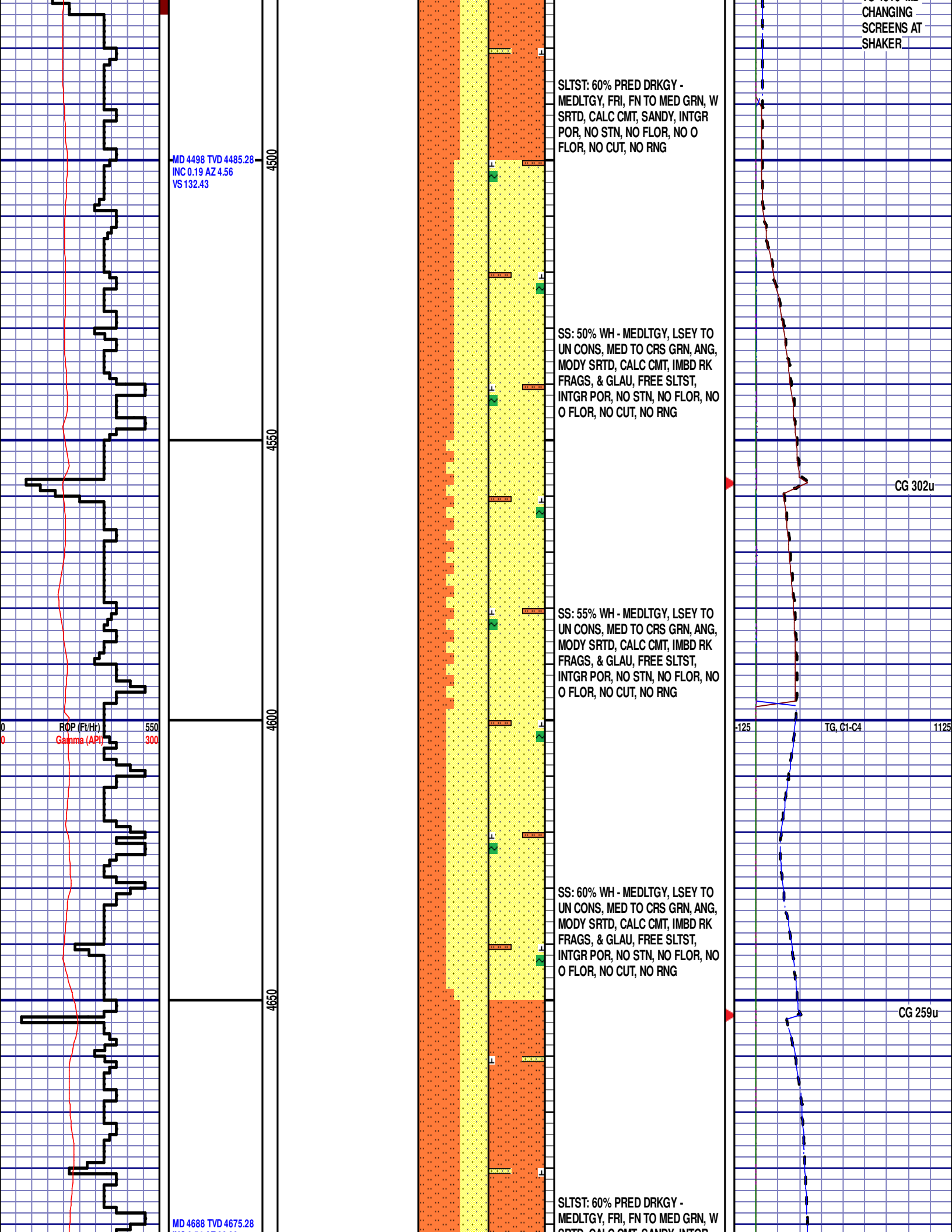
4300

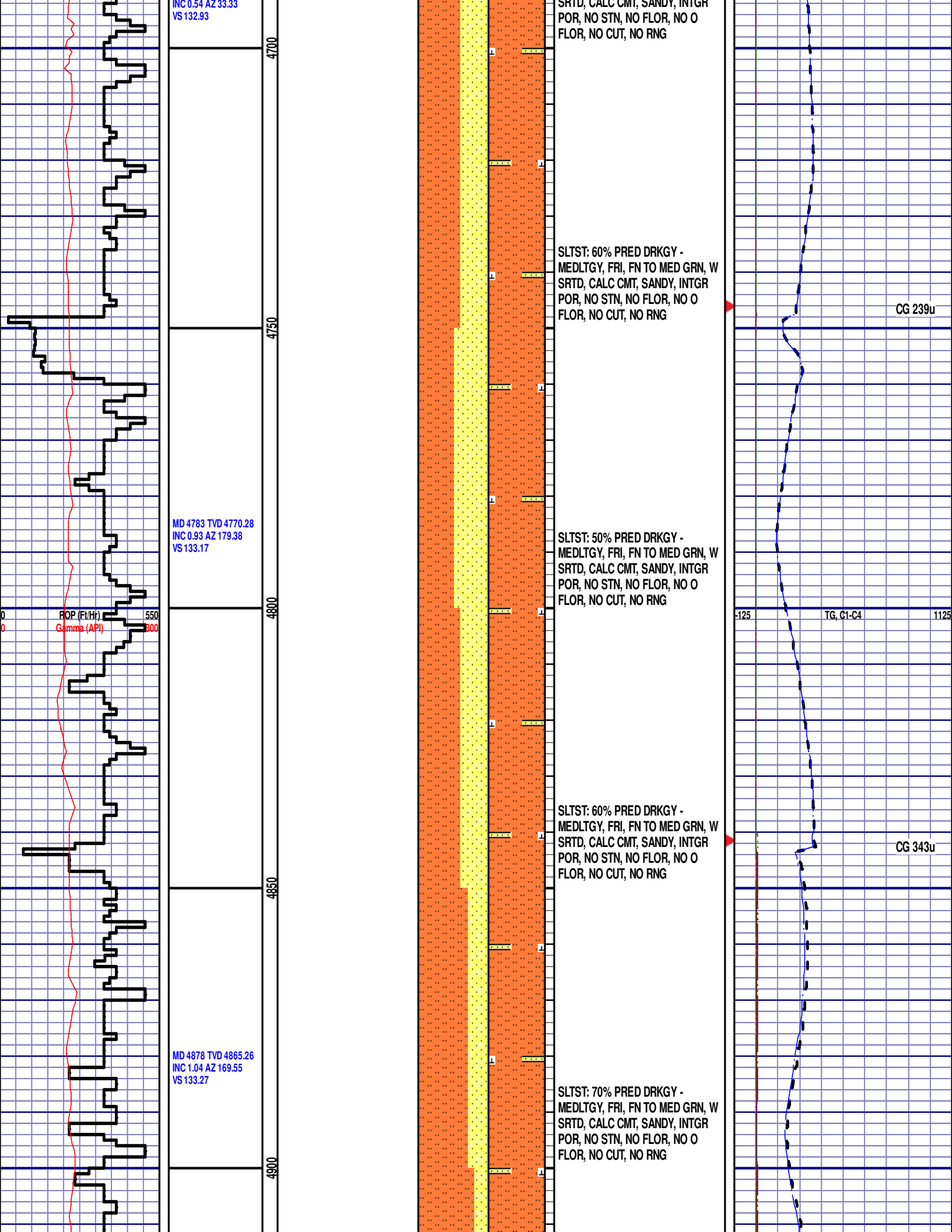
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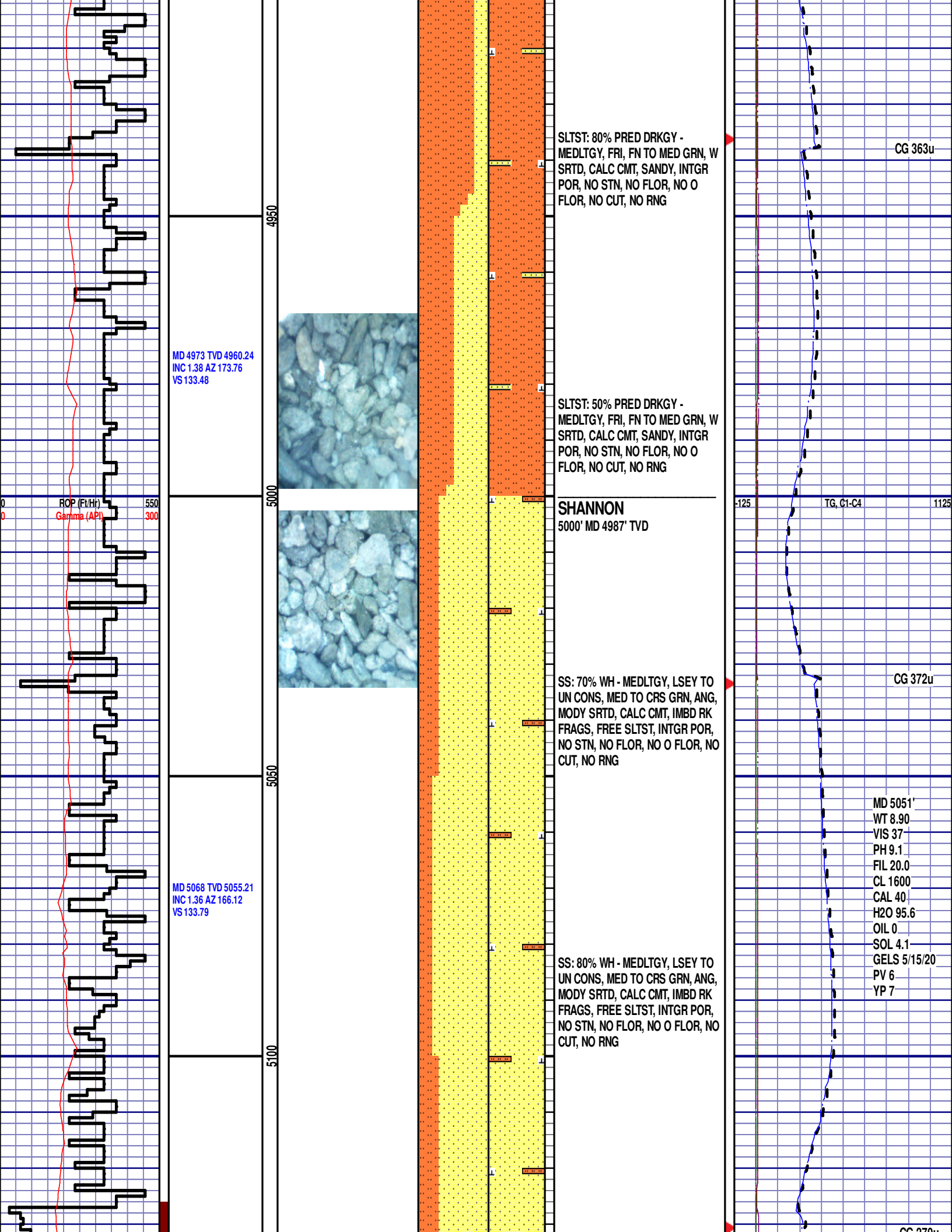
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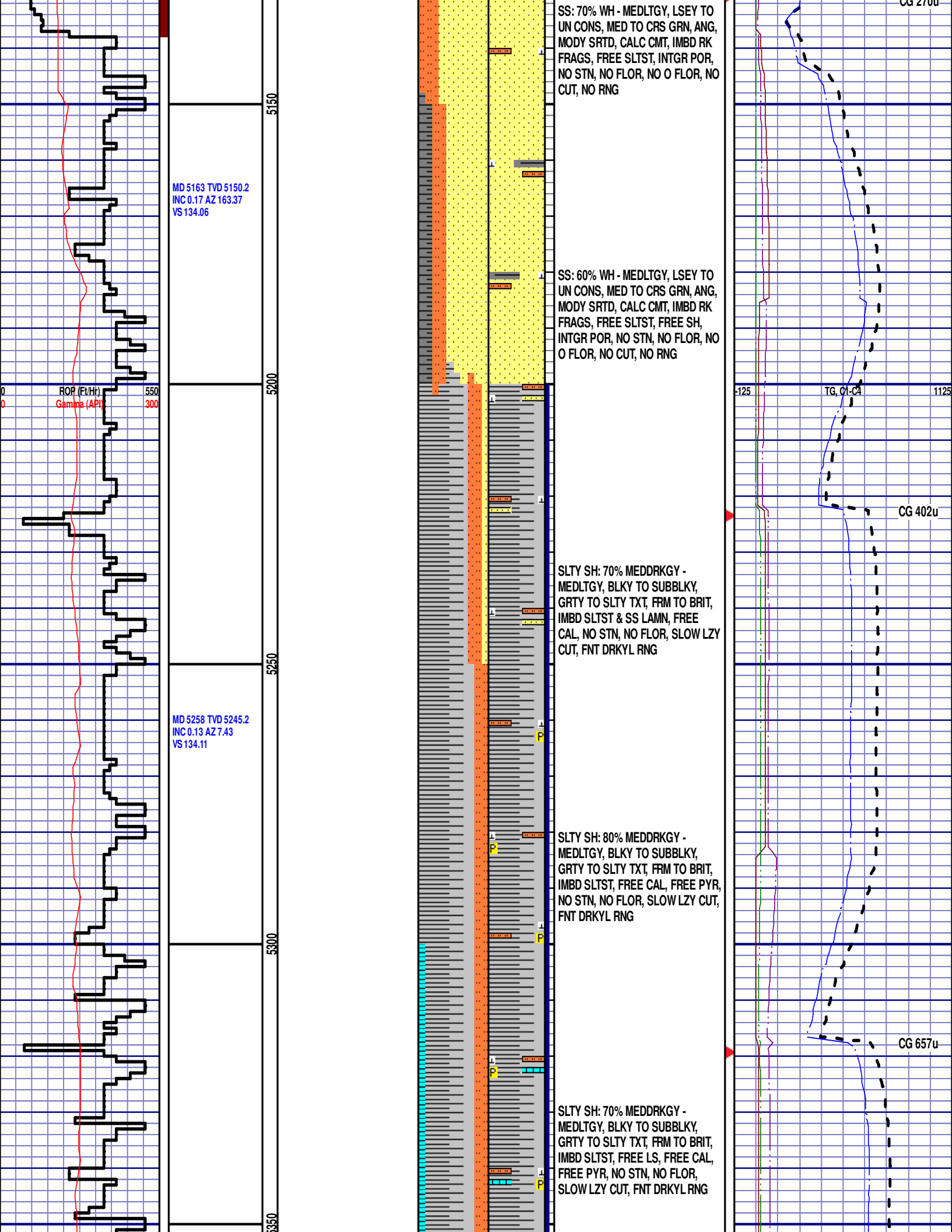
4450











MD 5353 TVD 5340.2
INC 0.1 AZ 247.41
VS 134.05

MD 5447 TVD 5434.2
INC 0.47 AZ 140.38
VS 134.21

MD 5542 TVD 5529.2
INC 0.46 AZ 136.51
VS 134.7

ROP (Ft/Hr)
Gamma (API)

SLTY SH: 70% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SLTST, FREE LS, FREE CAL,
FREE PYR, NO STN, NO FLOR,
SLOW LZY CUT, FNT DRKYL RNG

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

SLTY SH: 70% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SLTST & SS LAMN, FREE
CAL, FREE PYR, NO STN, NO
FLOR, SLOW LZY CUT, FNT DRKYL
RNG

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

-125 TG, C1-C4 1125

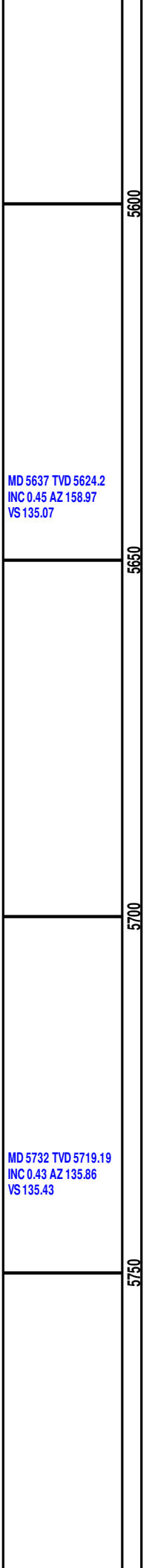
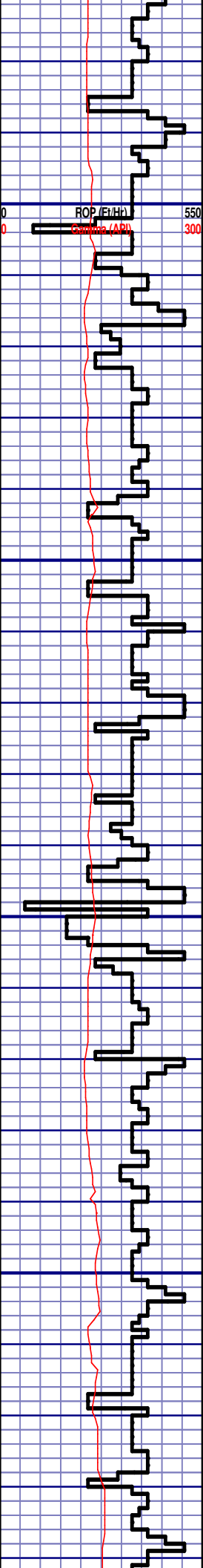
CG 761u

-350 TG, C1-C4 3150

Scale Change

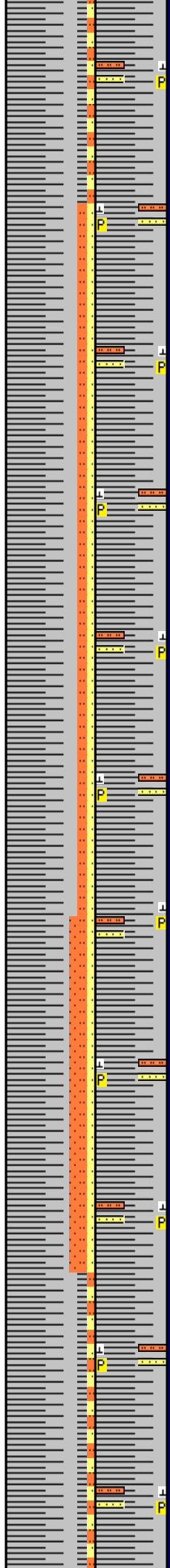
SCALE: -350 TO
3150 (350
UNITS/DIVISION)

CG 1145u



MD 5732 TVD 5719.19
INC 0.43 AZ 135.86
VS 135.43

5600
5650
5700
5750



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

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

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

SLTY SH: 70% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SLTST & SS LAMN, FREE
CAL, FREE PYR, NO STN, NO
FLOR, SLOW LZY CUT, FNT DRKYL
RNG

SLTY SH: 90% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD SLTST & SS LAMN, FREE

