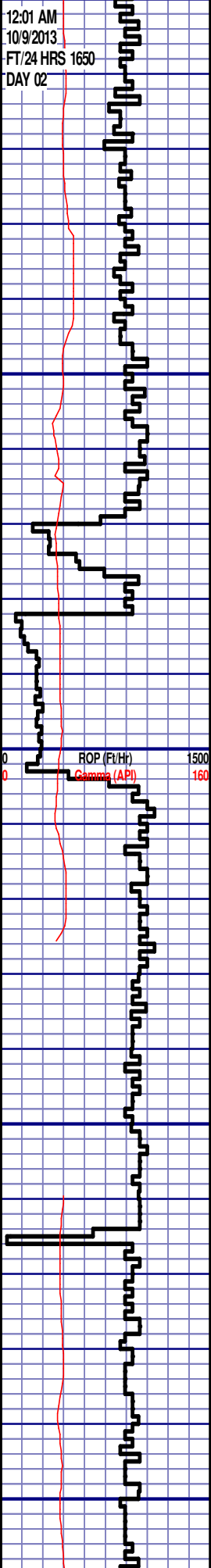




(MISSING GAMMA PRESENT)

BW

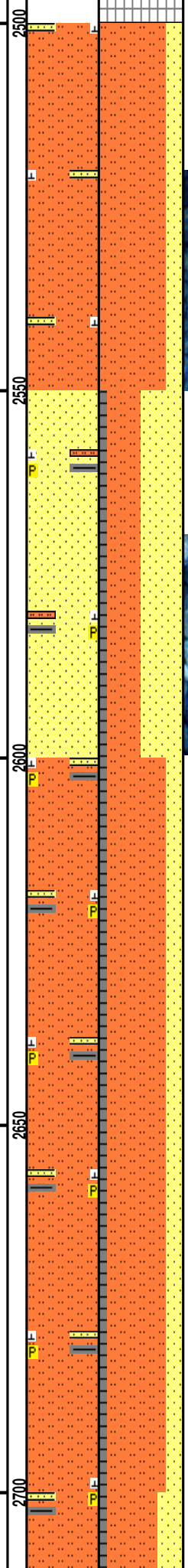


12:01 AM  
10/9/2013  
FT/24 HRS 1650  
DAY 02

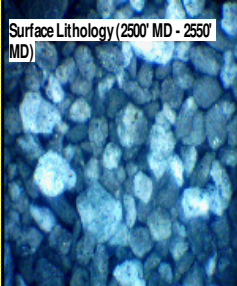
MD 2515 TVD 2513.35  
INC 5.5 AZ 203.6  
VS -45.62

MD 2610 TVD 2607.83  
INC 6.5 AZ 208.6  
VS -53.97

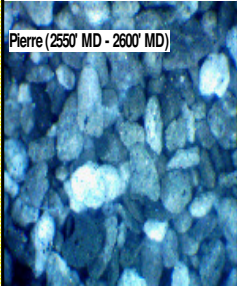
MD 2705 TVD 2702.27  
INC 6 AZ 206.5  
VS -57.54



Surface Lithology (2500' MD - 2550' MD)



Pierre (2550' MD - 2600' MD)



COMMENCED LOGGING @ 12:50 AM  
ON 10/9/2013 W/BIT # 2 8.75" SMITH  
MDI516 (S/N) JH1761 IN @ 635' MD

2500'- 2550': SLTST: 80% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC  
SANDY, INTGRPOR, NO STN, NO  
FLOR, NO OFLOR, NO CUT, NO  
RNG

### PIERRE

2557' MD 2555' TVD

2550'- 2600': SS: 50% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
SILTY, INTGR POR, NO STN, NO  
FLOR, NOO FLOR, NO CUT, NO  
RNG

2600'- 2650': SLTST: 70% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
SANDY, INTGRPOR, NO STN, NO  
FLOR, NO OFLOR, NO CUT, NO  
RNG

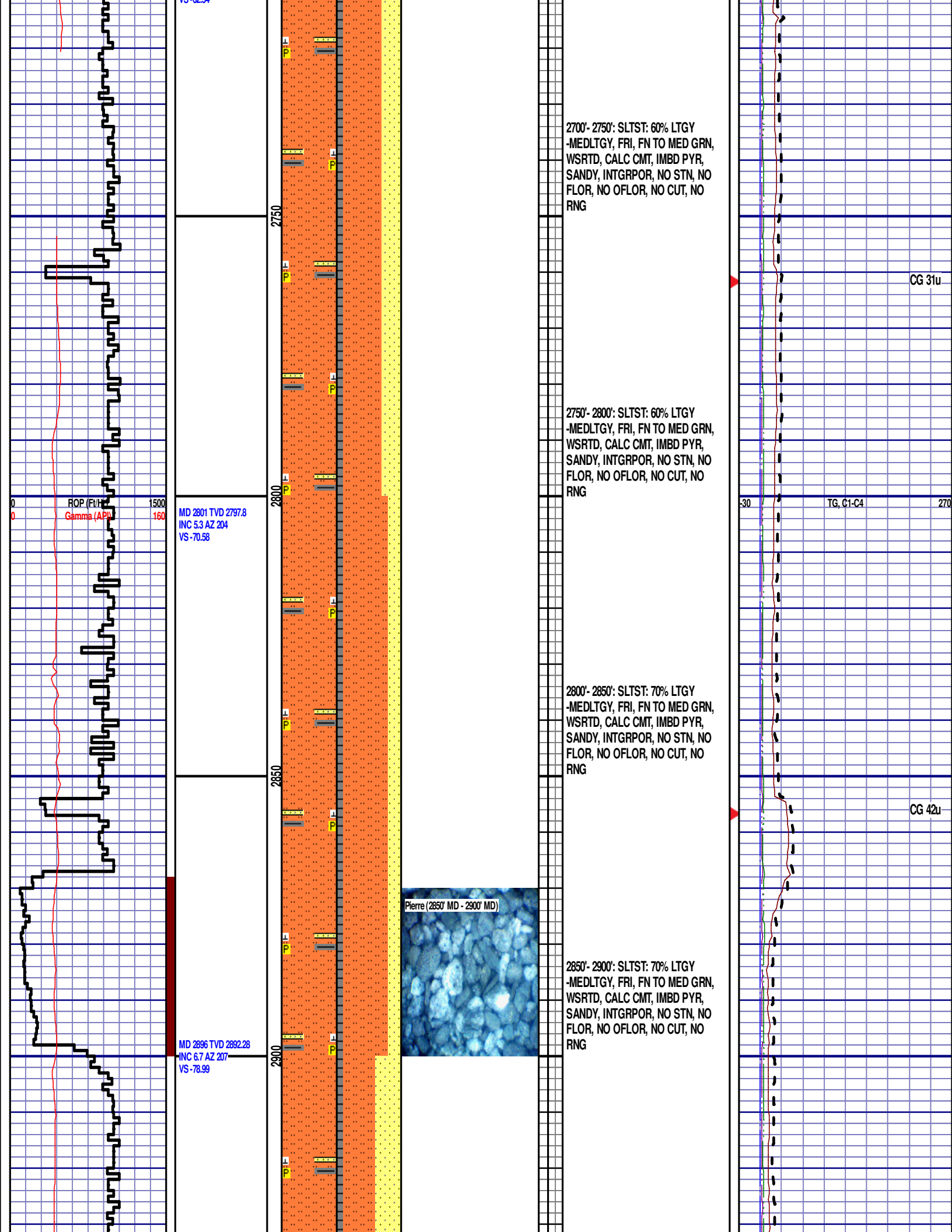
2650'- 2700': SLTST: 70% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
SANDY, INTGRPOR, NO STN, NO  
FLOR, NO OFLOR, NO CUT, NO  
RNG

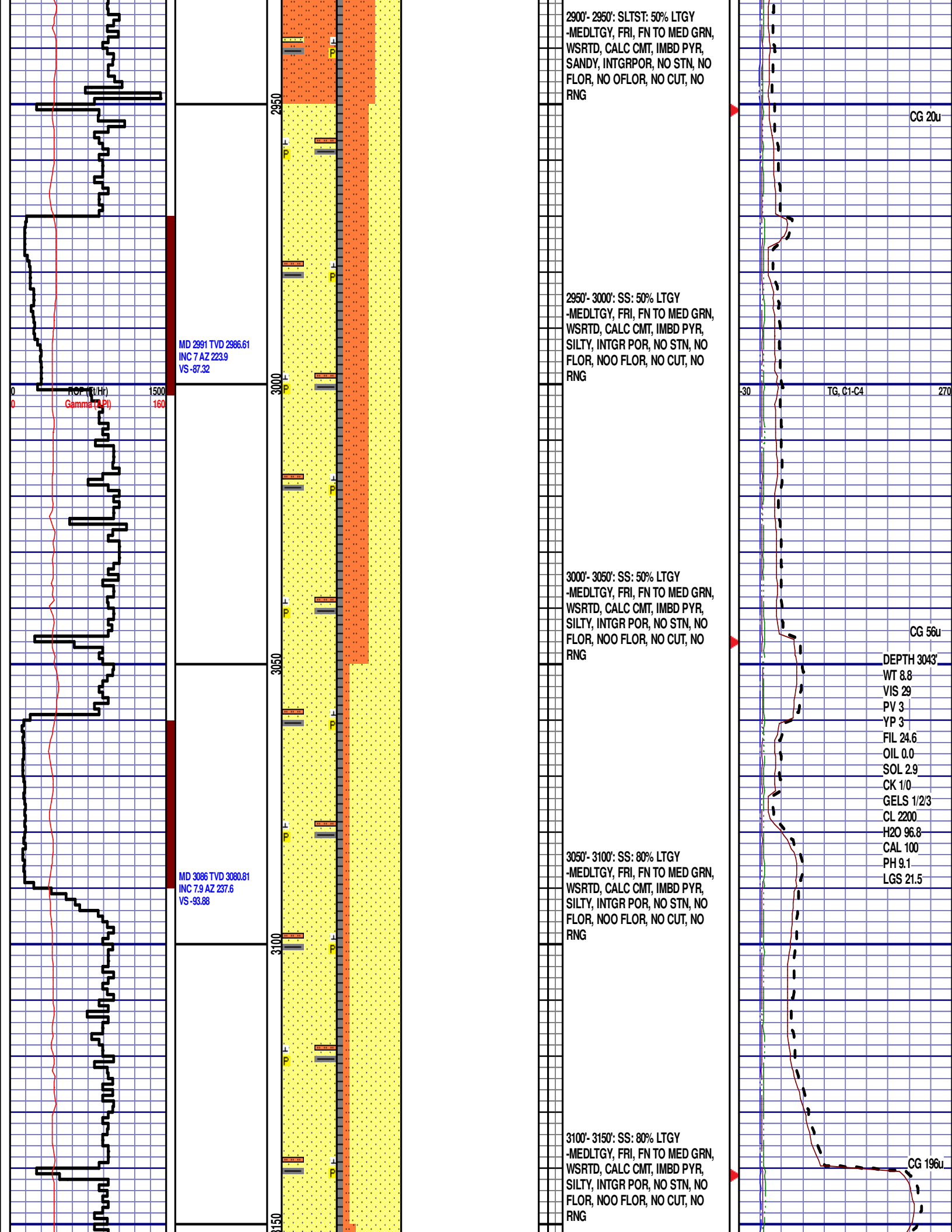
DEPTH 635'  
WT 8.7  
VIS 30  
PV 2  
YP 3  
FIL 30.2  
OIL 0.0  
SOL 1.7  
CK 1/0  
GELS 1/2/2  
CL 2200  
H2O 98.0  
CAL 100  
PH 8.2  
LGS 6.42

CG 149u

TG, C1-C4

CG 35u





2900'- 2950': SLTST: 50% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
SANDY, INTGRPOR, NO STN, NO  
FLOR, NO OFLOR, NO CUT, NO  
RNG

CG 20u

2950'- 3000': SS: 50% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
SILTY, INTGR POR, NO STN, NO  
FLOR, NOO FLOR, NO CUT, NO  
RNG

30 TG, C1-C4 270

3000'- 3050': SS: 50% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
SILTY, INTGR POR, NO STN, NO  
FLOR, NOO FLOR, NO CUT, NO  
RNG

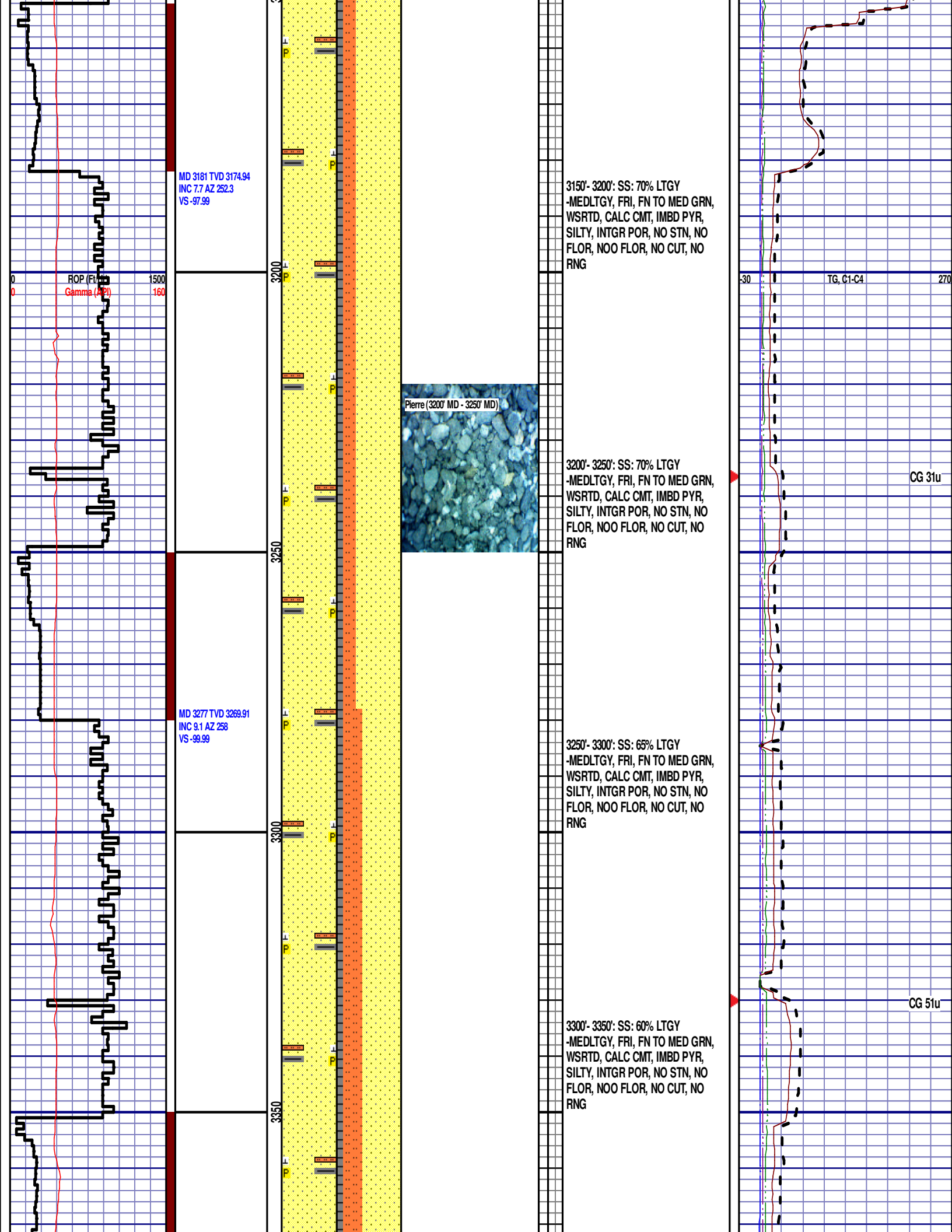
CG 56u

3050'- 3100': SS: 80% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
SILTY, INTGR POR, NO STN, NO  
FLOR, NOO FLOR, NO CUT, NO  
RNG

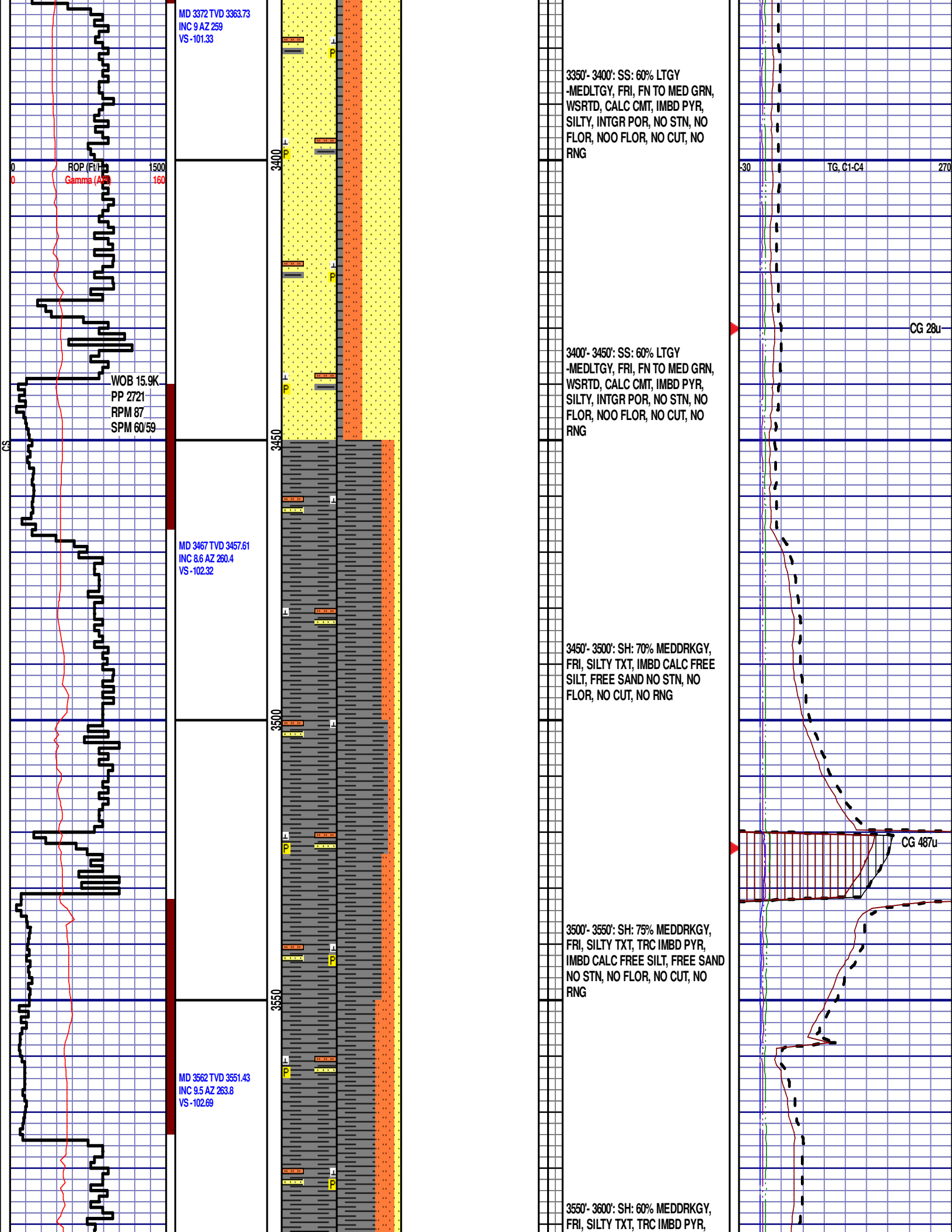
DEPTH 3043'  
WT 8.8  
VIS 29  
PV 3  
YP 3  
FIL 24.6  
OIL 0.0  
SOL 2.9  
CK 1/0  
GELS 1/2/3  
CL 2200  
H2O 96.8  
CAL 100  
PH 9.1  
LGS 21.5

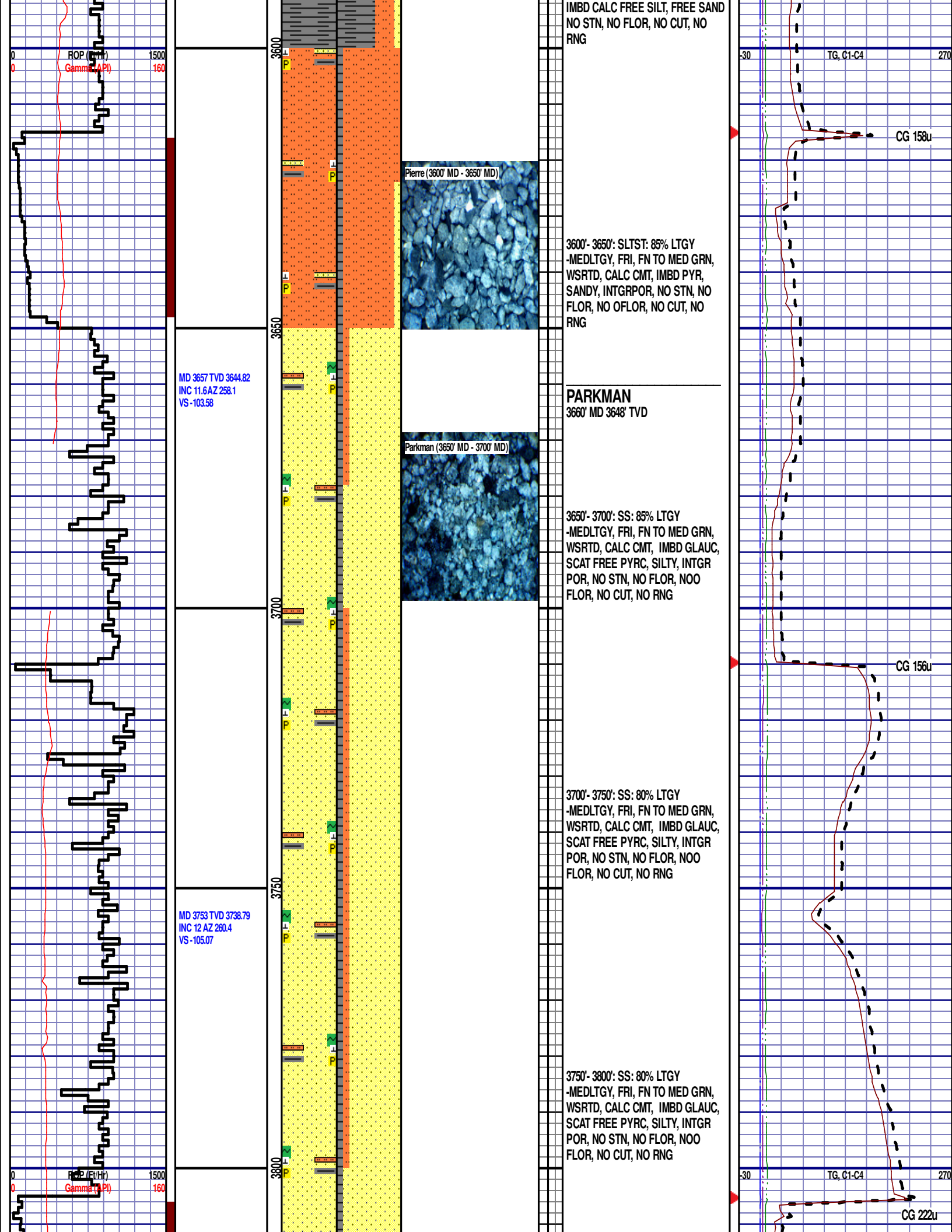
3100'- 3150': SS: 80% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
SILTY, INTGR POR, NO STN, NO  
FLOR, NOO FLOR, NO CUT, NO  
RNG

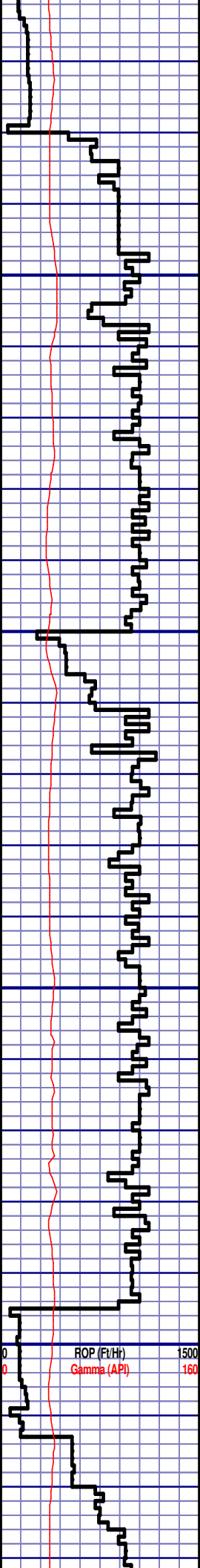
CG 196u





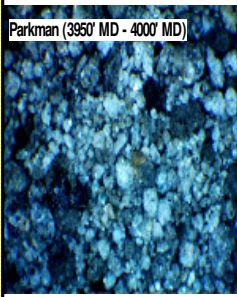
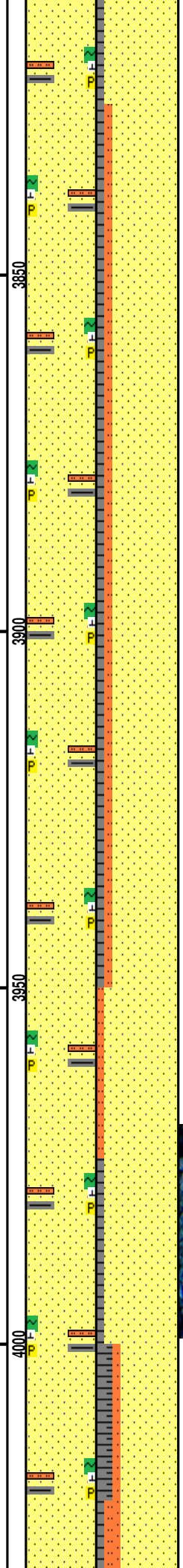






MD 3848 TVD 3831.58  
INC 12.8 AZ 256.2  
VS -106.98

MD 3943 TVD 3924.09  
INC 13.5 AZ 254.8  
VS -110.03

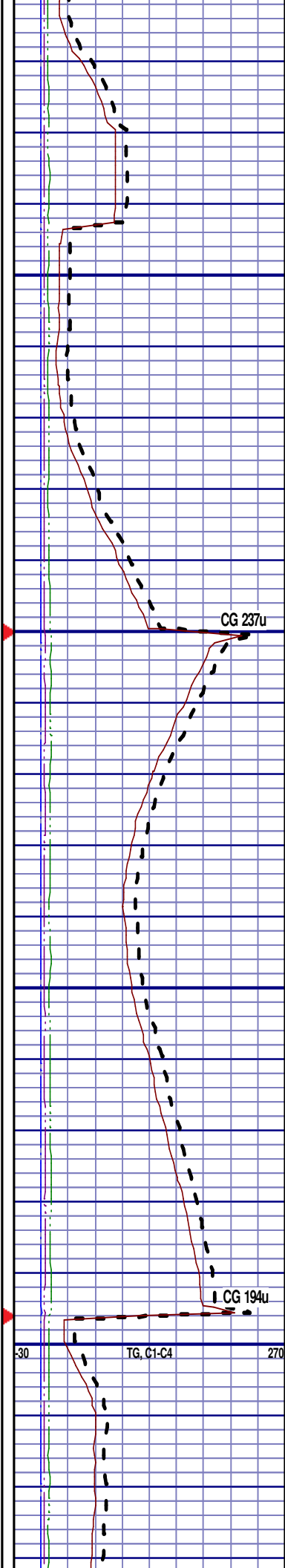


3800'- 3850': SS: 85% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
SCAT FREE PYRC, SILTY, INTGR  
POR, NO STN, NO FLOR, NOO  
FLOR, NO CUT, NO RNG

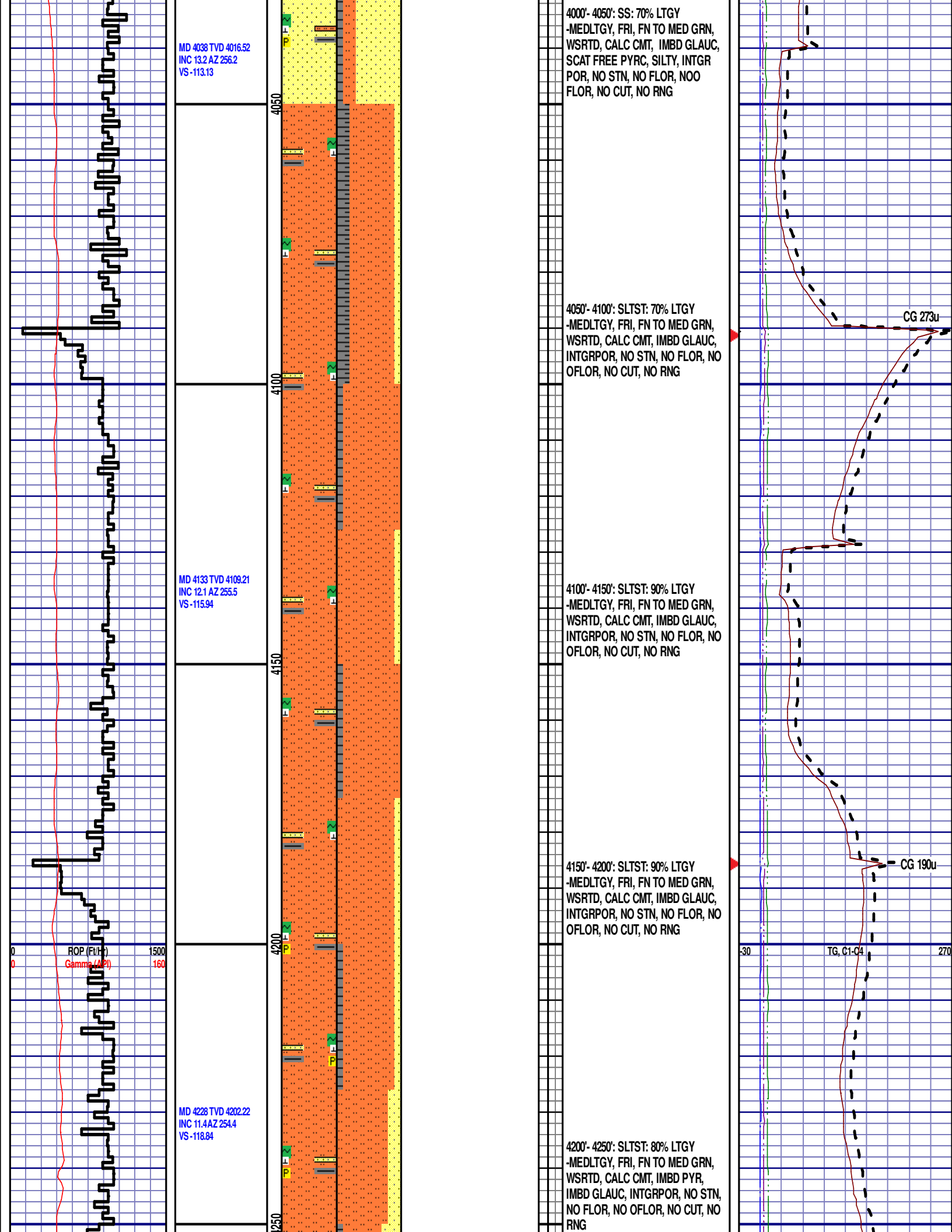
3850'- 3900': SS: 80% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
SCAT FREE PYRC, SILTY, INTGR  
POR, NO STN, NO FLOR, NOO  
FLOR, NO CUT, NO RNG

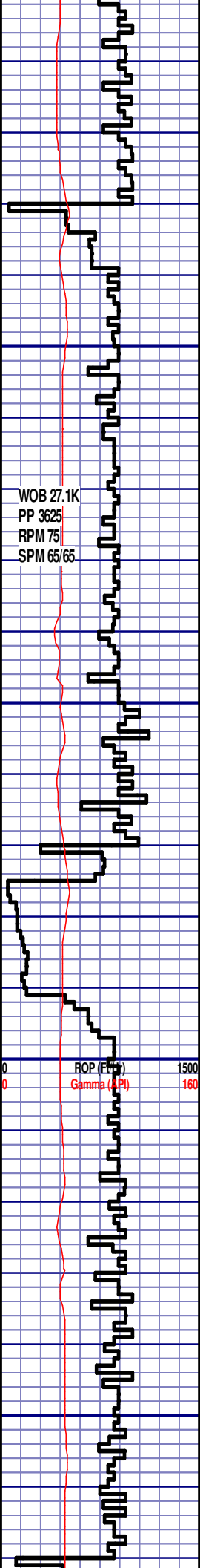
3900'- 3950': SS: 80% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
SCAT FREE PYRC, SILTY, INTGR  
POR, NO STN, NO FLOR, NOO  
FLOR, NO CUT, NO RNG

3950'- 4000': SS: 90% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
SCAT FREE PYRC, SILTY, INTGR  
POR, NO STN, NO FLOR, NOO  
FLOR, NO CUT, NO RNG







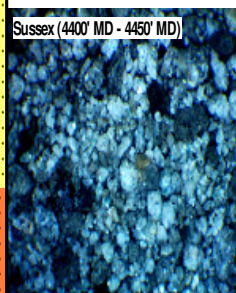
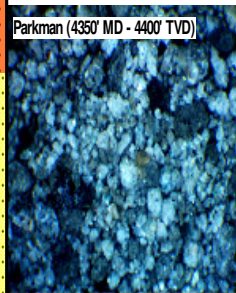
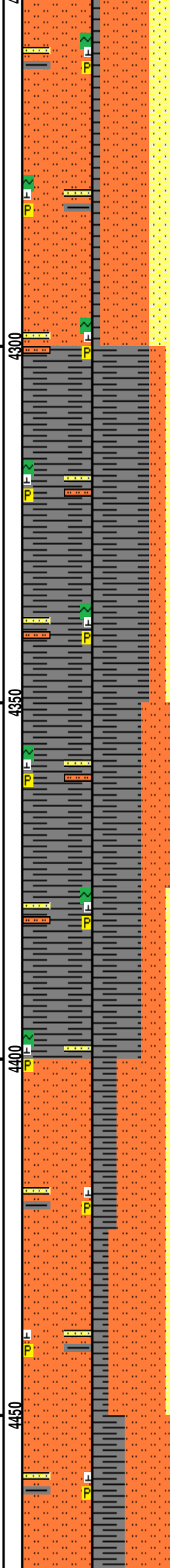


WOB 27.1K  
PP 3625  
RPM 75  
SPM 65/65

MD 4324 TVD 4296.55  
INC 10 AZ 252.5  
VS -121.97

ROP (Feet)  
Gamma (API)

MD 4419 TVD 4390.23  
INC 9.1 AZ 256.2  
VS -124.53



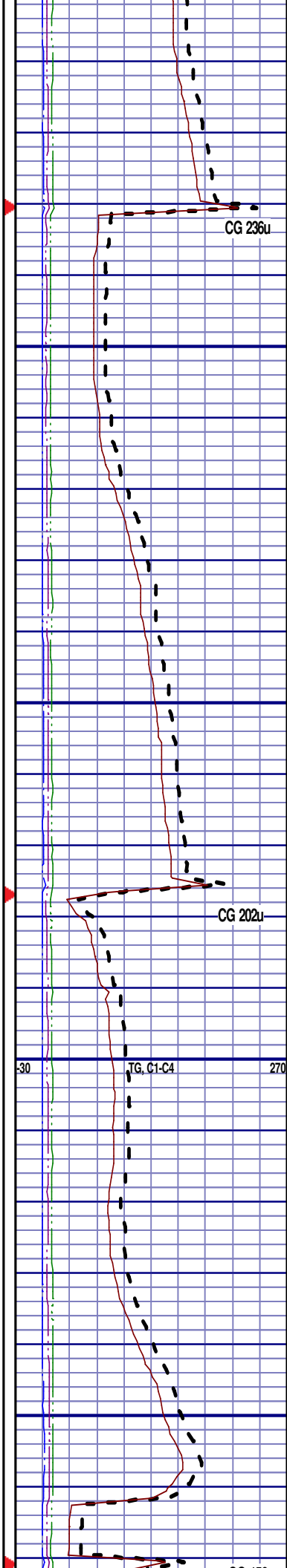
4250'- 4300': SLTST: 60% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
IMBD PYR, INTGRPOR, NO STN, NO  
FLOR, NO OFLOR, NO CUT, NO  
RNG

4300'- 4350': SH: 70% MEDDRKGY,  
FRI, SILTY TXT, IMBD CALC FREE  
SILT, IMBD GLAUC, FREE SAND, NO  
STN, NO FLOR, SLOW BLUE STRM  
CUT, YLW RNG

4350'- 4400': SH: 60% MEDDRKGY,  
FRI, SILTY TXT, IMBD CALC FREE  
SILT, IMBD GLAUC, FREE SAND, NO  
STN, NO FLOR, SLOW BLUE STRM  
CUT, YLW RNG

**SUSSEX**  
4424' MD 4395' TVD

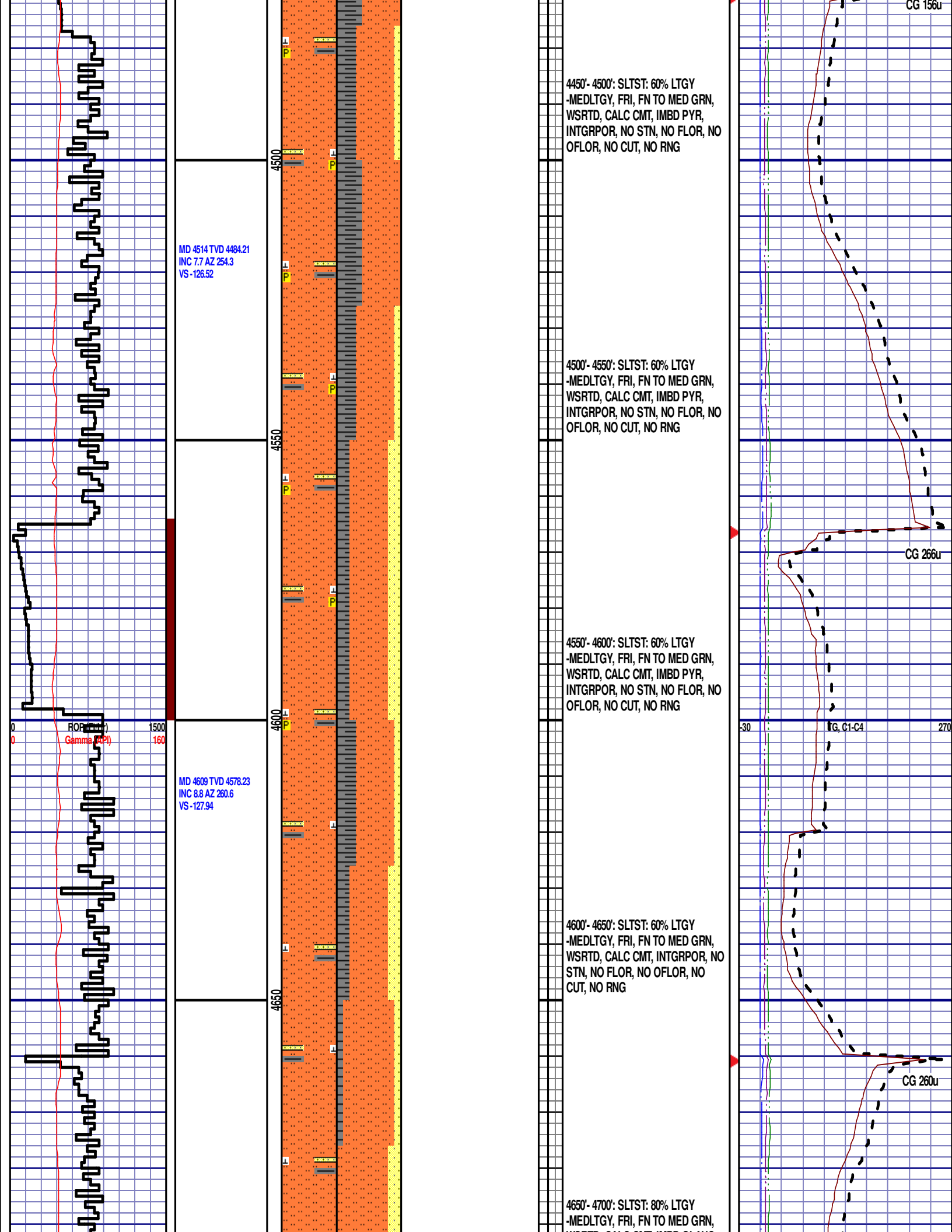
4400'- 4450': SLTST: 65% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
INTGRPOR, NO STN, NO FLOR, NO  
OFLOR, NO CUT, NO RNG



CG 236u

CG 202u

TG, C1-C4



4700'- 4750': SLTST: 80% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
INTGRPOR, NO STN, NO FLOR, NO  
OFLOR, NO CUT, NO RNG

4750'- 4800': SLTST: 80% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
INTGRPOR, NO STN, NO FLOR, NO  
OFLOR, NO CUT, NO RNG

4800'- 4850': SLTST: 80% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
INTGRPOR, NO STN, NO FLOR, NO  
OFLO, NO CUT, NO RNG

4850'- 4900': SLTST: 80% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
IMBD GLAUC, INTGRPOR, NO STN,  
NO FLOR, NO OFLOR, NO CUT, NO  
RNG

MD 4800 TVD 4767.48  
INC 7 AZ 262.5  
VS -130.82

MD 4895 TVD 4861.85  
INC 6.2 AZ 261.1  
VS -131.16

Sussex (4700' MD - 4750' MD)

**Scale Change**  
TG, C1-C4

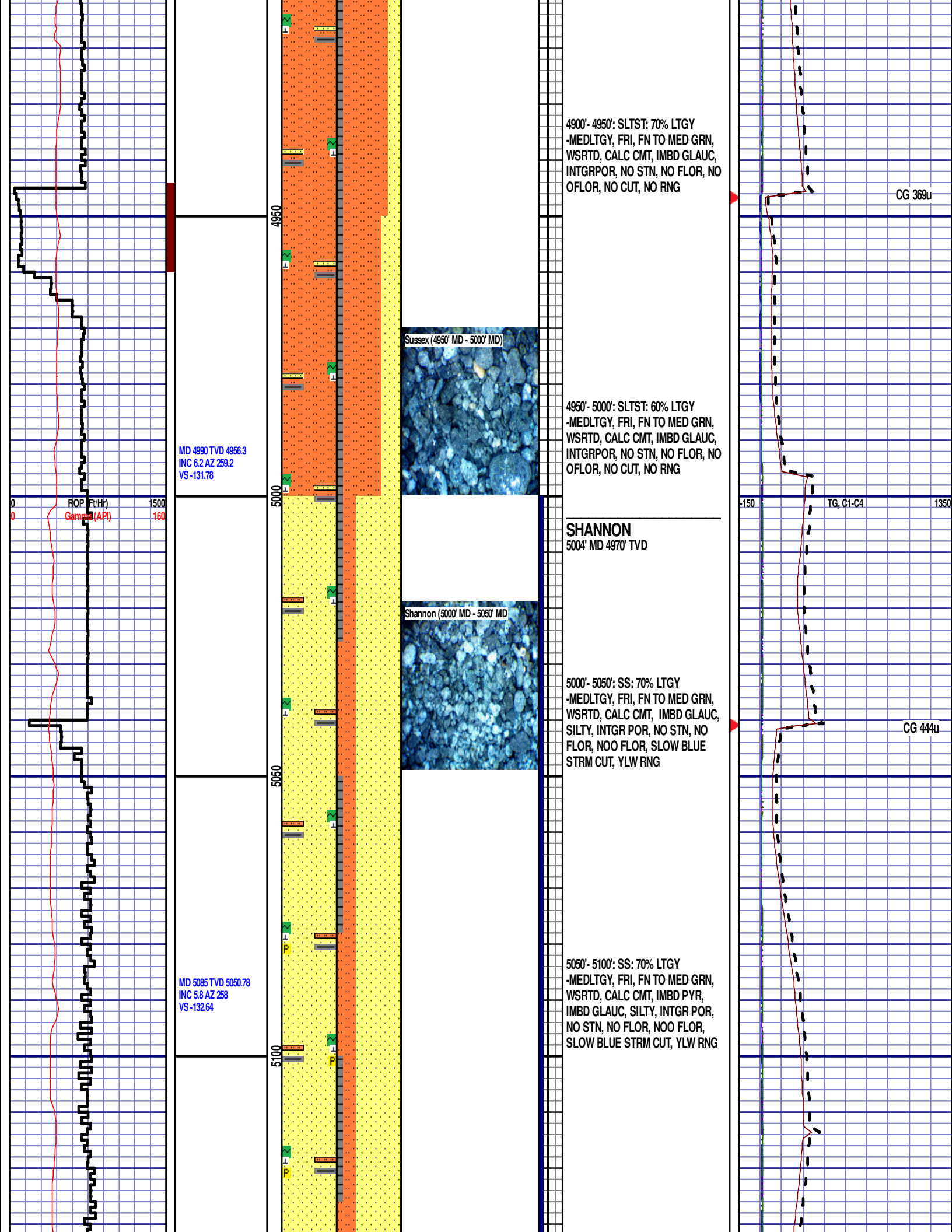
SCALE CHANGE:  
-150 TO 1350

**150 UNITS/DIVISION**

CG 275u

TG, C1-C4

CG 331u



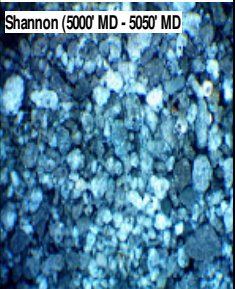
4900'- 4950': SLTST: 70% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
INTGRPOR, NO STN, NO FLOR, NO  
OFLOR, NO CUT, NO RNG

CG 369u



4950'- 5000': SLTST: 60% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
INTGRPOR, NO STN, NO FLOR, NO  
OFLOR, NO CUT, NO RNG

**SHANNON**  
5004' MD 4970' TVD



5000'- 5050': SS: 70% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD GLAUC,  
SILTY, INTGR POR, NO STN, NO  
FLOR, NOO FLOR, SLOW BLUE  
STRM CUT, YLW RNG

CG 444u

5050'- 5100': SS: 70% LTGY  
-MEDLTGY, FRI, FN TO MED GRN,  
WSRTD, CALC CMT, IMBD PYR,  
IMBD GLAUC, SILTY, INTGR POR,  
NO STN, NO FLOR, NOO FLOR,  
SLOW BLUE STRM CUT, YLW RNG

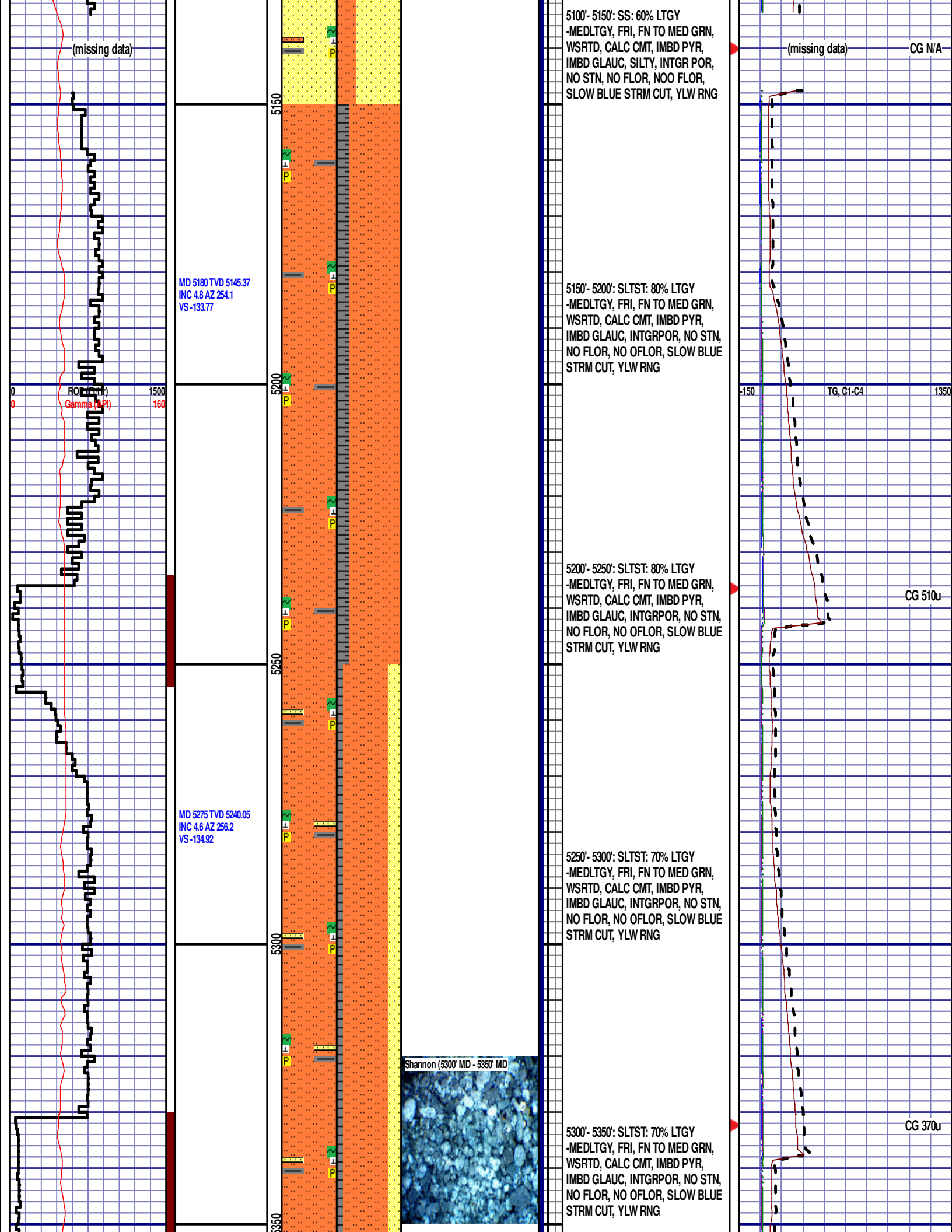
MD 4990 TVD 4956.3  
INC 6.2 AZ 259.2  
VS -131.78

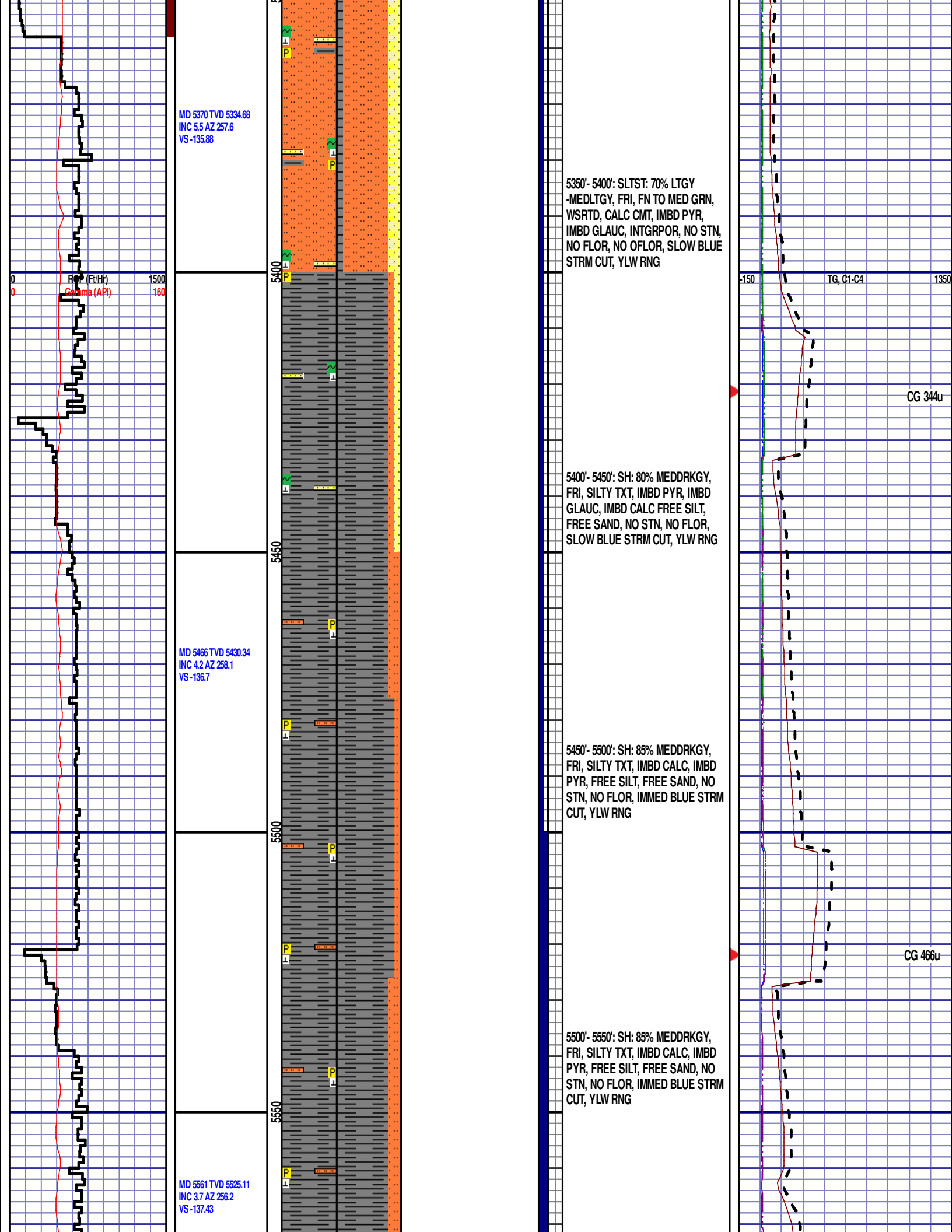
MD 5085 TVD 5050.78  
INC 5.8 AZ 258  
VS -132.64

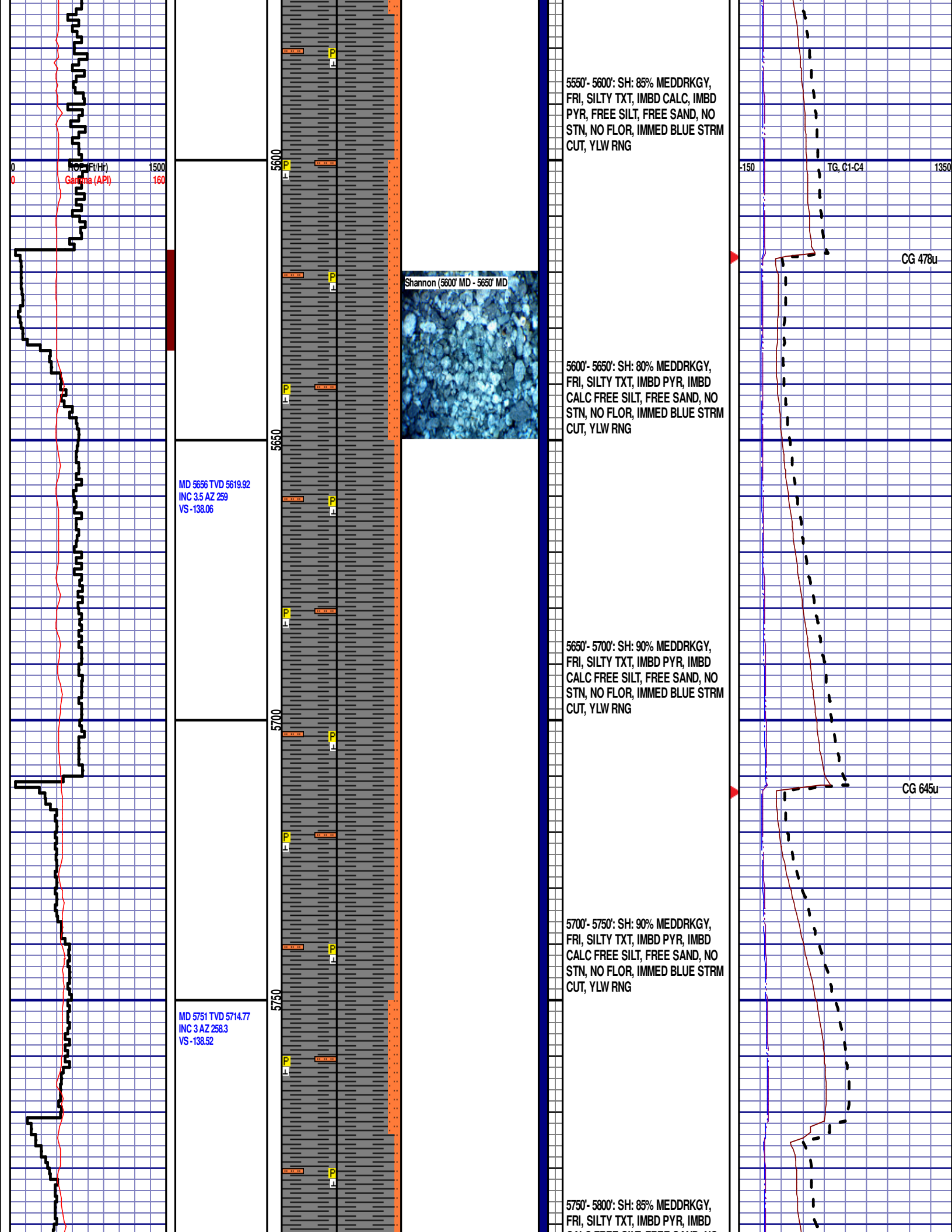
ROP (Ft/Hr)  
Gamma (API)

TG, C1-C4









5550'- 5600': SH: 85% MEDDRKGY,  
FRI, SILTY TXT, IMBD CALC, IMBD  
PYR, FREE SILT, FREE SAND, NO  
STN, NO FLOR, IMMED BLUE STRM  
CUT, YLW RNG

Shannon (5600' MD - 5650' MD)

5600'- 5650': SH: 80% MEDDRKGY,  
FRI, SILTY TXT, IMBD PYR, IMBD  
CALC FREE SILT, FREE SAND, NO  
STN, NO FLOR, IMMED BLUE STRM  
CUT, YLW RNG

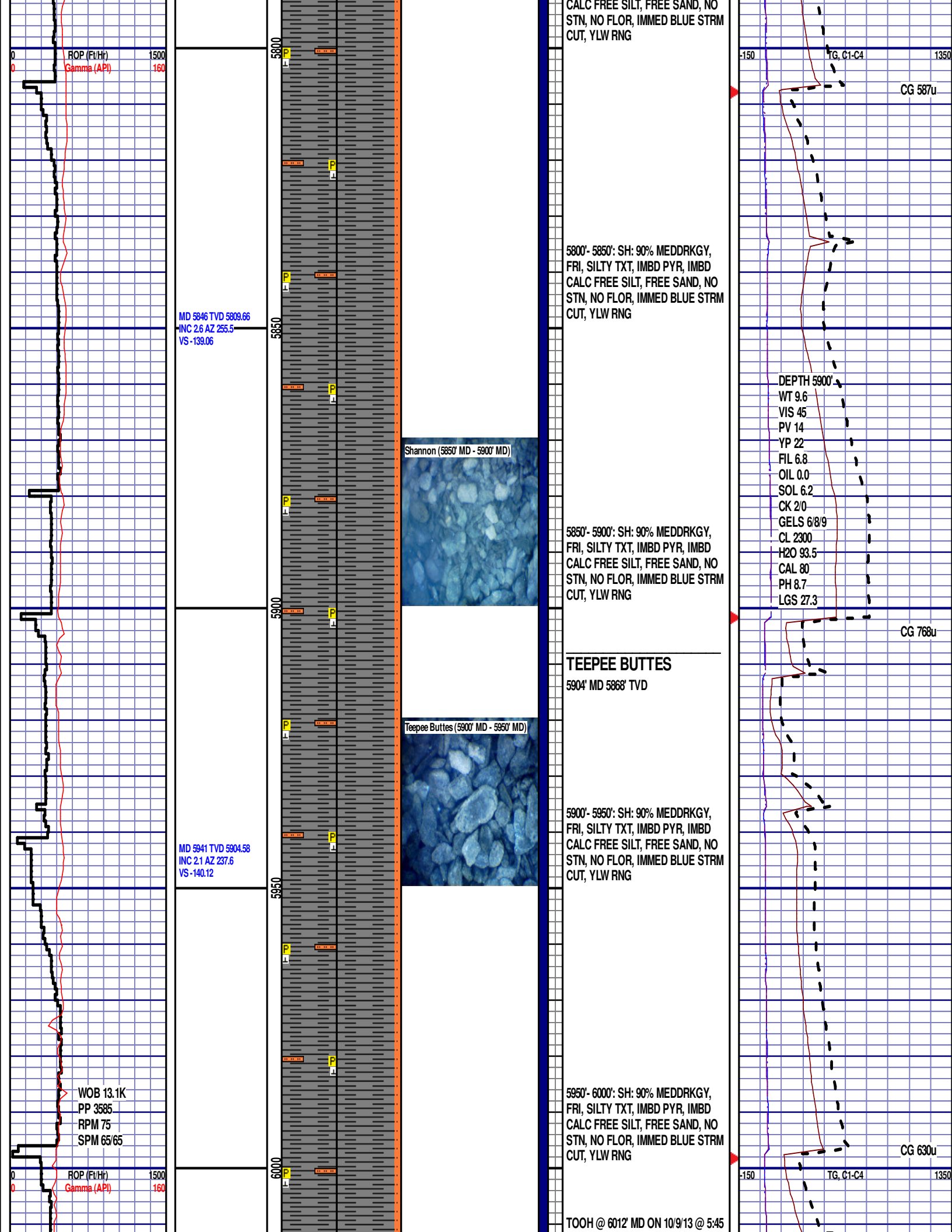
5650'- 5700': SH: 90% MEDDRKGY,  
FRI, SILTY TXT, IMBD PYR, IMBD  
CALC FREE SILT, FREE SAND, NO  
STN, NO FLOR, IMMED BLUE STRM  
CUT, YLW RNG

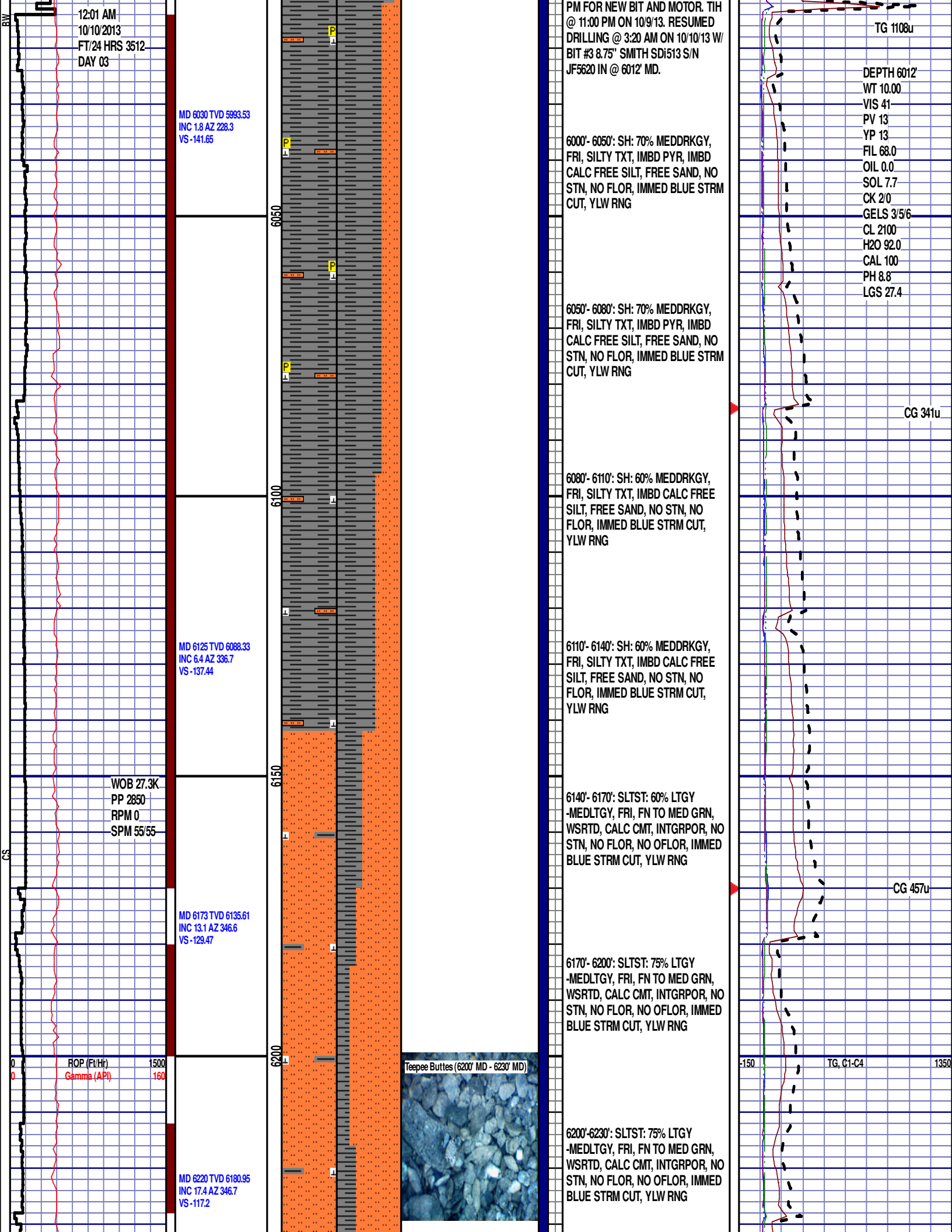
5700'- 5750': SH: 90% MEDDRKGY,  
FRI, SILTY TXT, IMBD PYR, IMBD  
CALC FREE SILT, FREE SAND, NO  
STN, NO FLOR, IMMED BLUE STRM  
CUT, YLW RNG

5750'- 5800': SH: 85% MEDDRKGY,  
FRI, SILTY TXT, IMBD PYR, IMBD

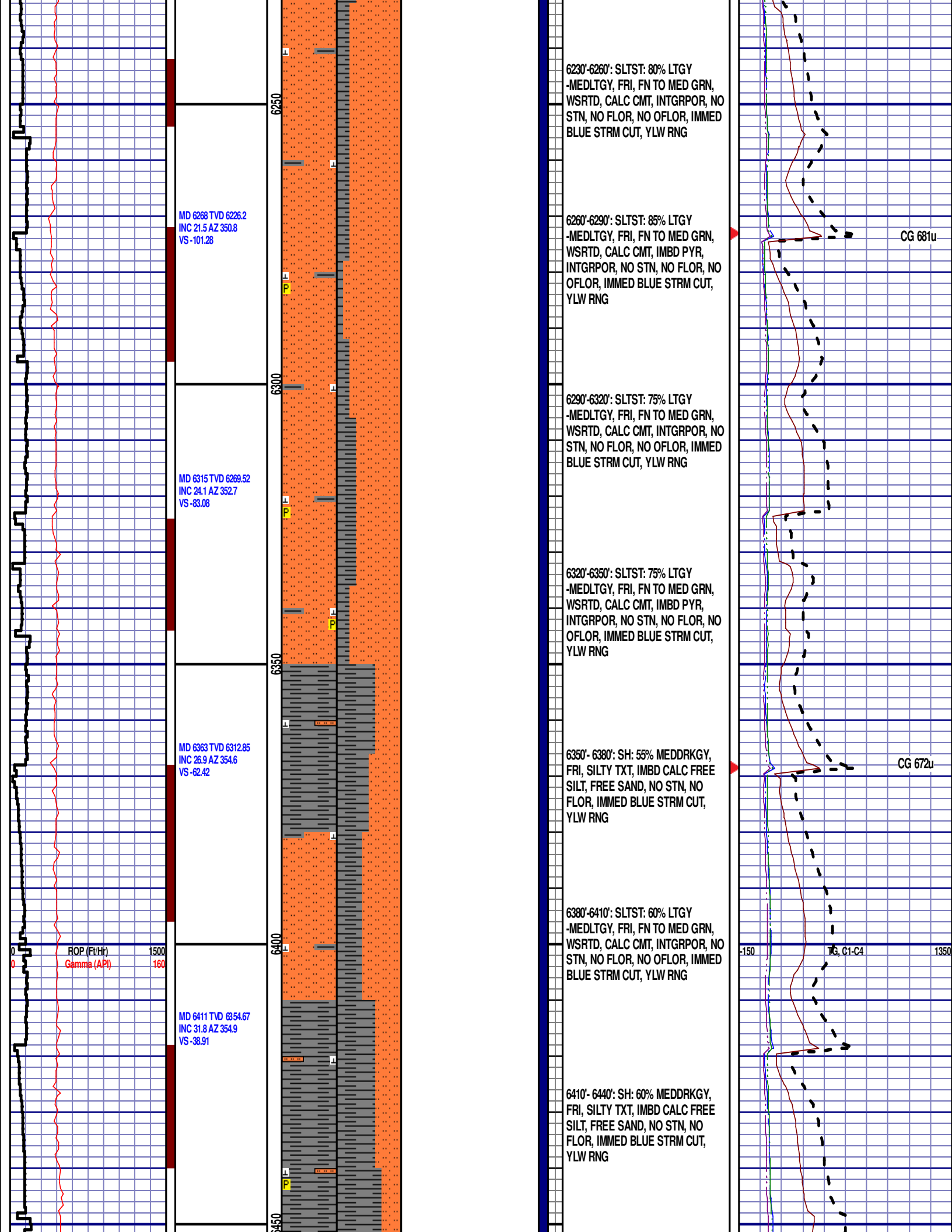
MD 5656 TVD 5619.92  
INC 3.5 AZ 259  
VS -138.06

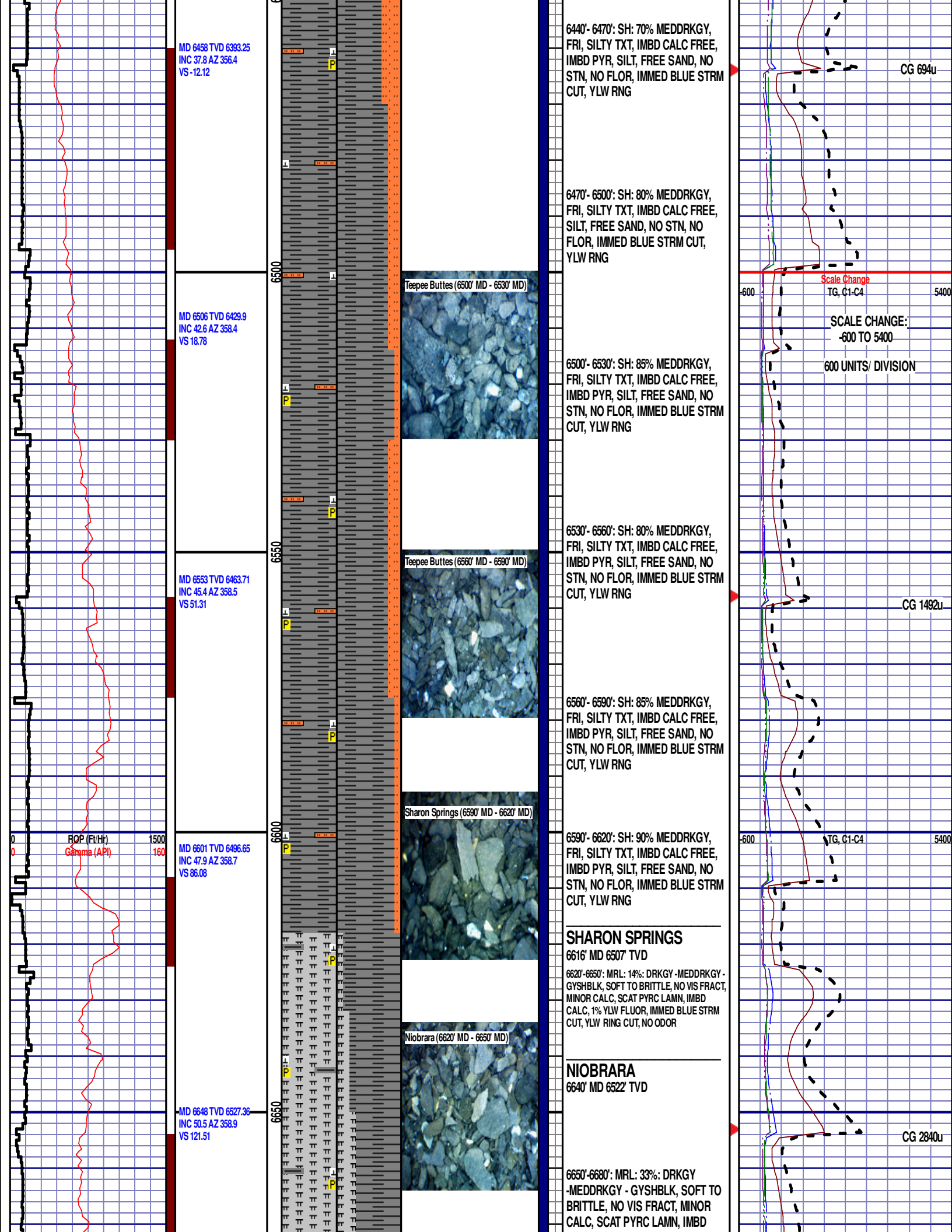
MD 5751 TVD 5714.77  
INC 3 AZ 258.3  
VS -138.52











WOB 21.3K  
PP 3122  
RPM 20  
SPM 55/55

MD 6696 TVD 6556.54  
INC 54.6 AZ 359.5  
VS 159.43

MD 6744 TVD 6582.54  
INC 59.8 AZ 359.5  
VS 199.55

6700

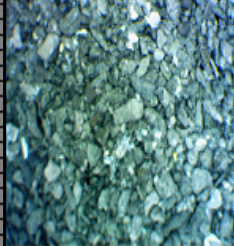
6750

00

Niobrara A Chalk (6680' MD - 6710' MD)



Niobrara A Marl (6740' MD - 6770' MD)



CALC, 1% YLW FLUOR, IMMED  
BLUE STRM CUT, YLW RING CUT,  
NO ODOR

## NIOBRARA A CHALK

6683' MD 6549' TVD

6680'-6710': CHLK: 70%: DRKGY  
-MEDDRKGY - GYSHBLK, BLKY,  
SLTY TXT, SOFT TO BRITTLE, IMBD  
CALC FLK, IMBD PYR LAMN, NO  
FLOR, IMMED BLUE STRM CUT,  
YLW RING

6710'-6740': CHLK: 59%: DRKGY  
-MEDDRKGY - GYSHBLK, BLKY,  
SLTY TXT, SOFT TO BRITTLE, IMBD  
CALC FLK, IMBD PYR LAMN, NO  
FLOR, IMMED BLUE STRM CUT,  
YLW RING

END OF VERTICAL LOG @ 6750'  
MD ON 10/10/2013, CONTINUED ON  
HORIZONTAL LOG

CG 4394u