

MD 2713 TVD 2699.41
INC 10.7 AZ 104.3
VS -93.09

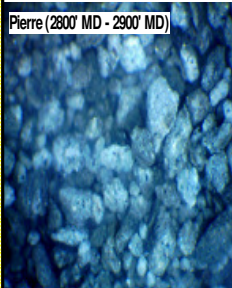
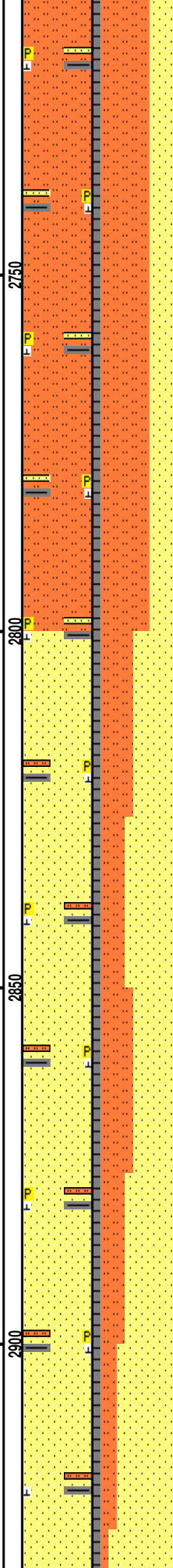
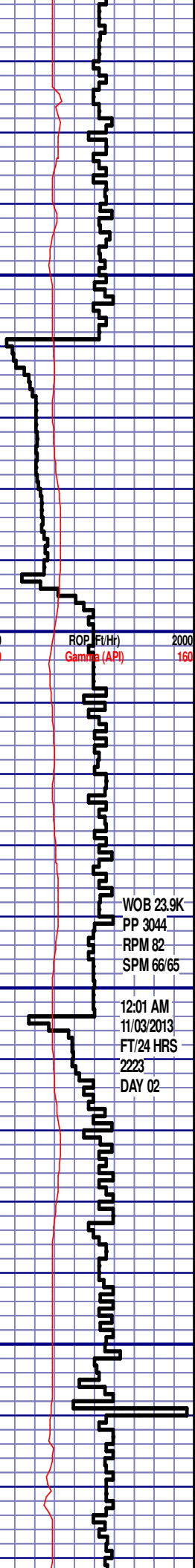
MD 2808 TVD 2792.58
INC 11.8 AZ 108.7
VS -96.9

MD 2903 TVD 2885.69
INC 11.1 AZ 105.7
VS -100.99

WOB 23.9K
PP 3044
RPM 82
SPM 66/65

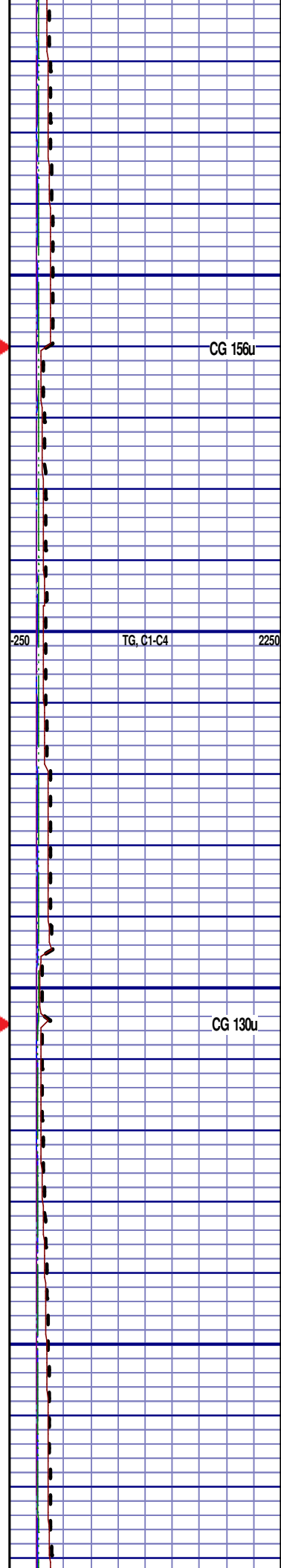
12:01 AM
11/03/2013
FT/24 HRS
2223
DAY 02

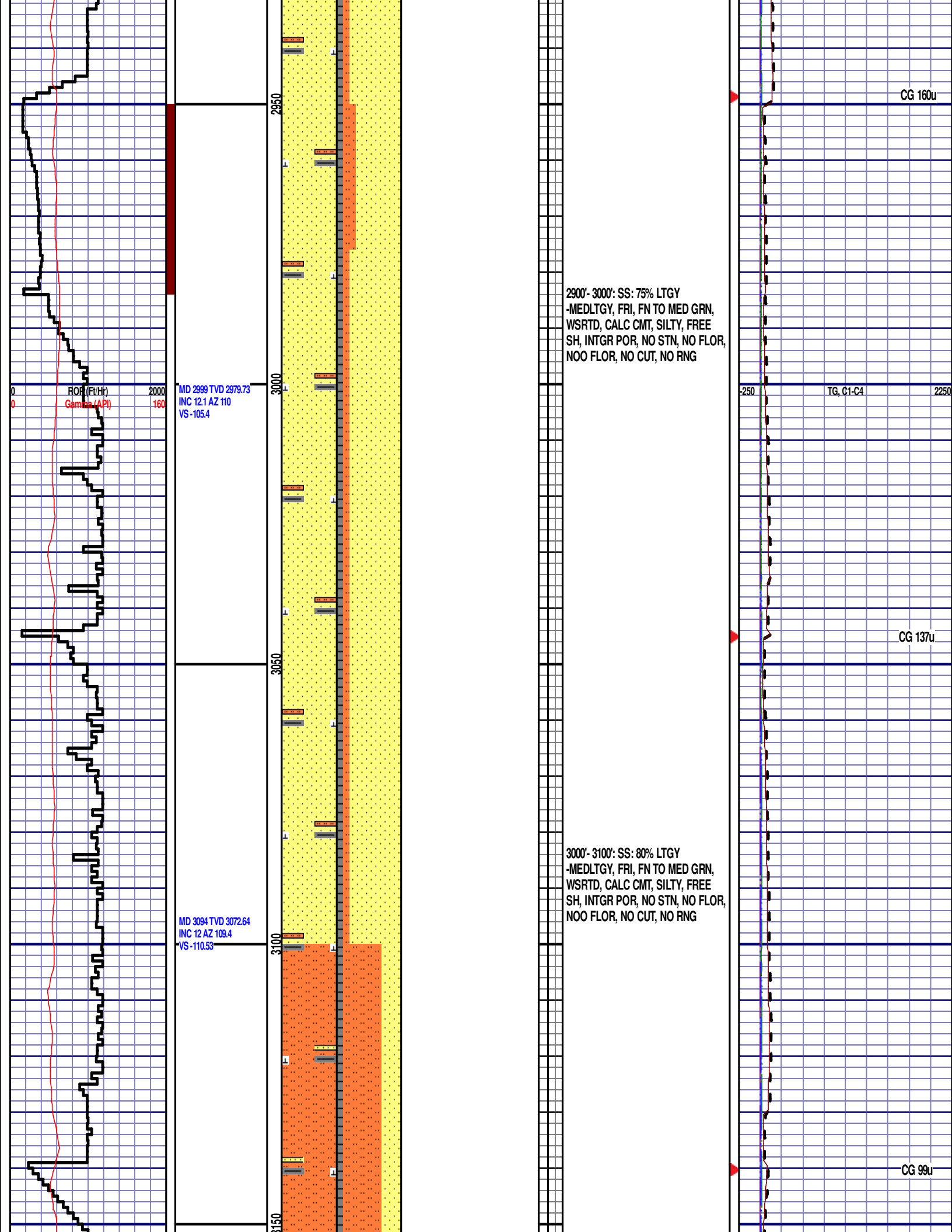
ROP (ft/Hr)
Gamma (API)

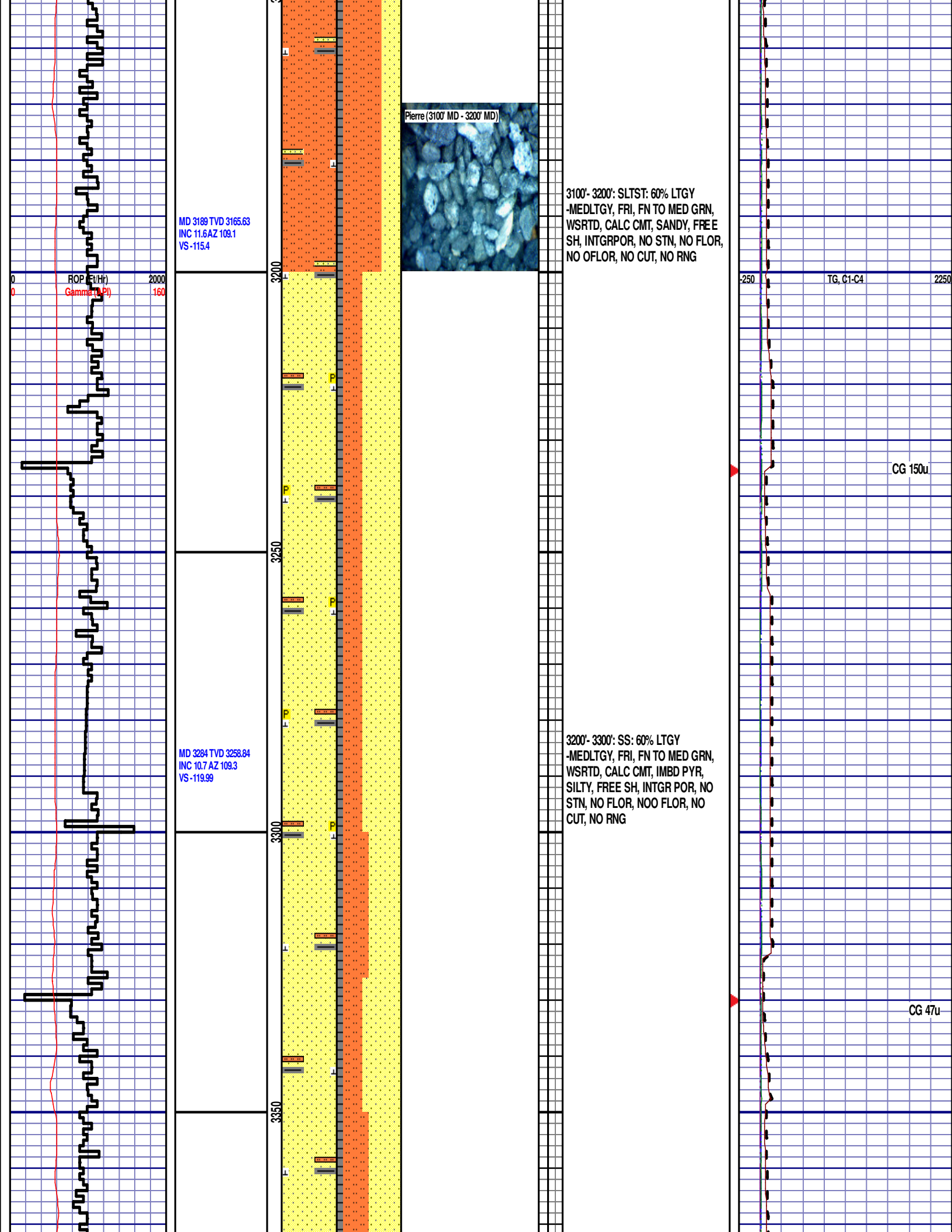


2700'- 2800': SLTST: 60% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SANDY, FREE SH, INTGRPOR, NO
STN, NO FLOR, NO OFLOR, NO
CUT, NO RNG

2800'- 2900': SS: 55% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SILTY, FREE SH, INTGR POR, NO
STN, NO FLOR, NOO FLOR, NO
CUT, NO RNG







MD 3379 TVD 3352.34
INC 9.7 AZ 106.4
VS -123.83

MD 3475 TVD 3447.02
INC 9.3 AZ 104.5
VS -126.79

MD 3570 TVD 3540.69
INC 9.9 AZ 105.9
VS -129.68

3300'- 3400': SS: 55% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, SILTY, FREE
SH, INTGR POR, NO STN, NO FLOR,
NOO FLOR, NO CUT, NO RNG

3400'- 3500': SLTST: 60% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SANDY, FREE SH, INTGRPOR, NO
STN, NO FLOR, NO OFLOR, NO
CUT, NO RNG

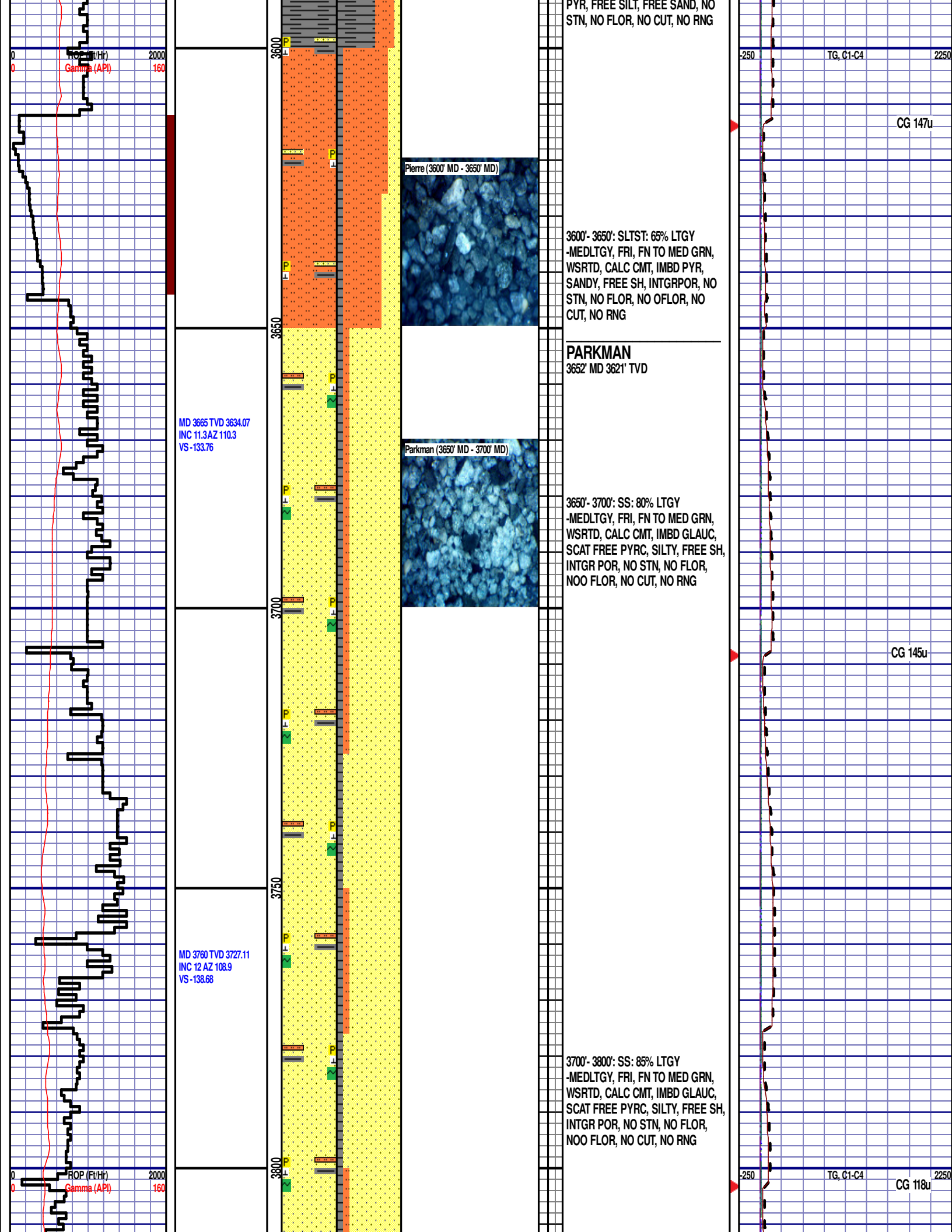
3500'- 3600': SH: 55% MEDDRKGY,
FRI, SILTY TXT, IMBD CALC, IMBD

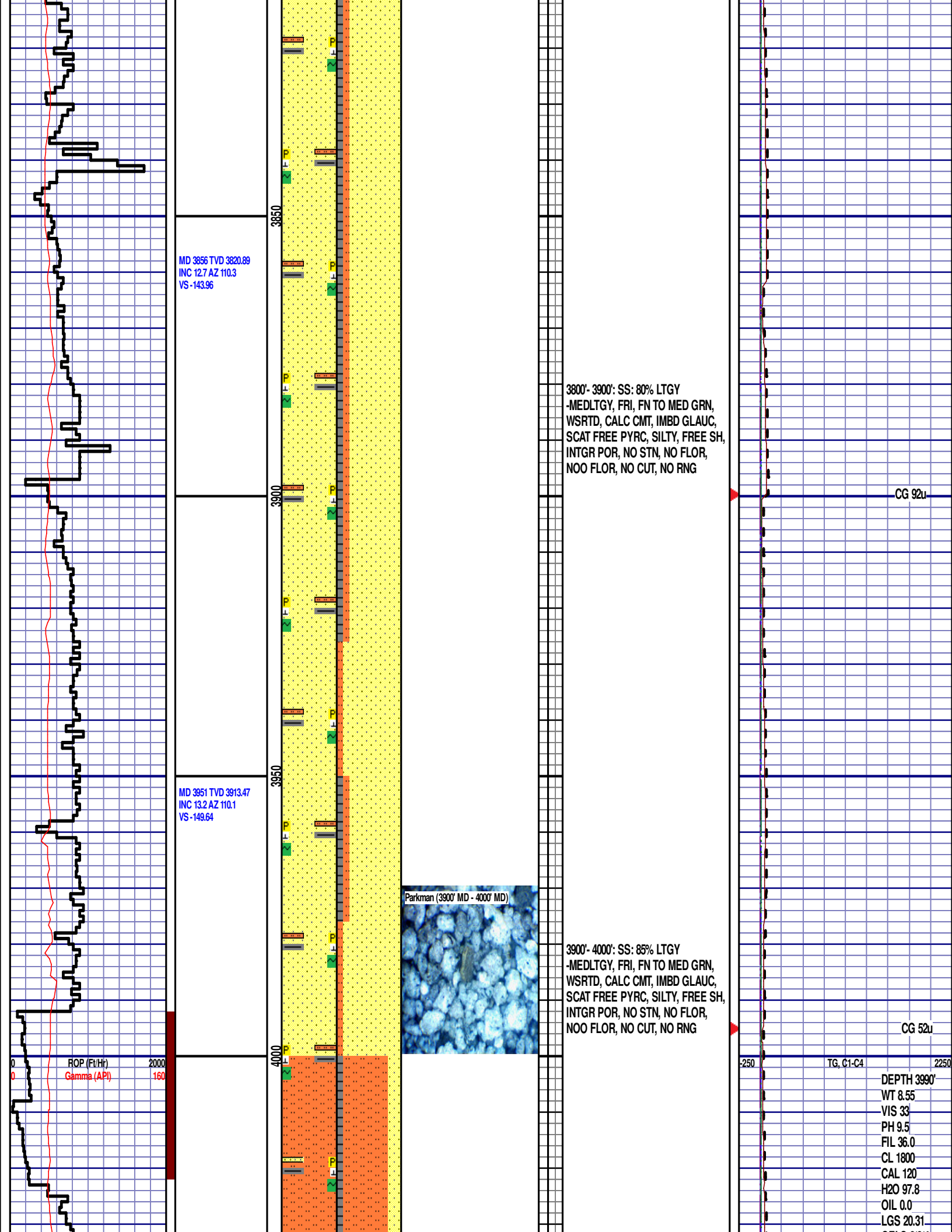


CG 134u

CG 91u

PYR, FREE SILT, FREE SAND, NO
STN, NO FLOR, NO CUT, NO RNG





MD 4046 TVD 4006.22
INC 11.8 AZ 108.4
VS -154.81

MD 4141 TVD 4099.33
INC 11.1 AZ 106.1
VS -158.92

MD 4236 TVD 4192.82
INC 9.3 AZ 104.3
VS -162

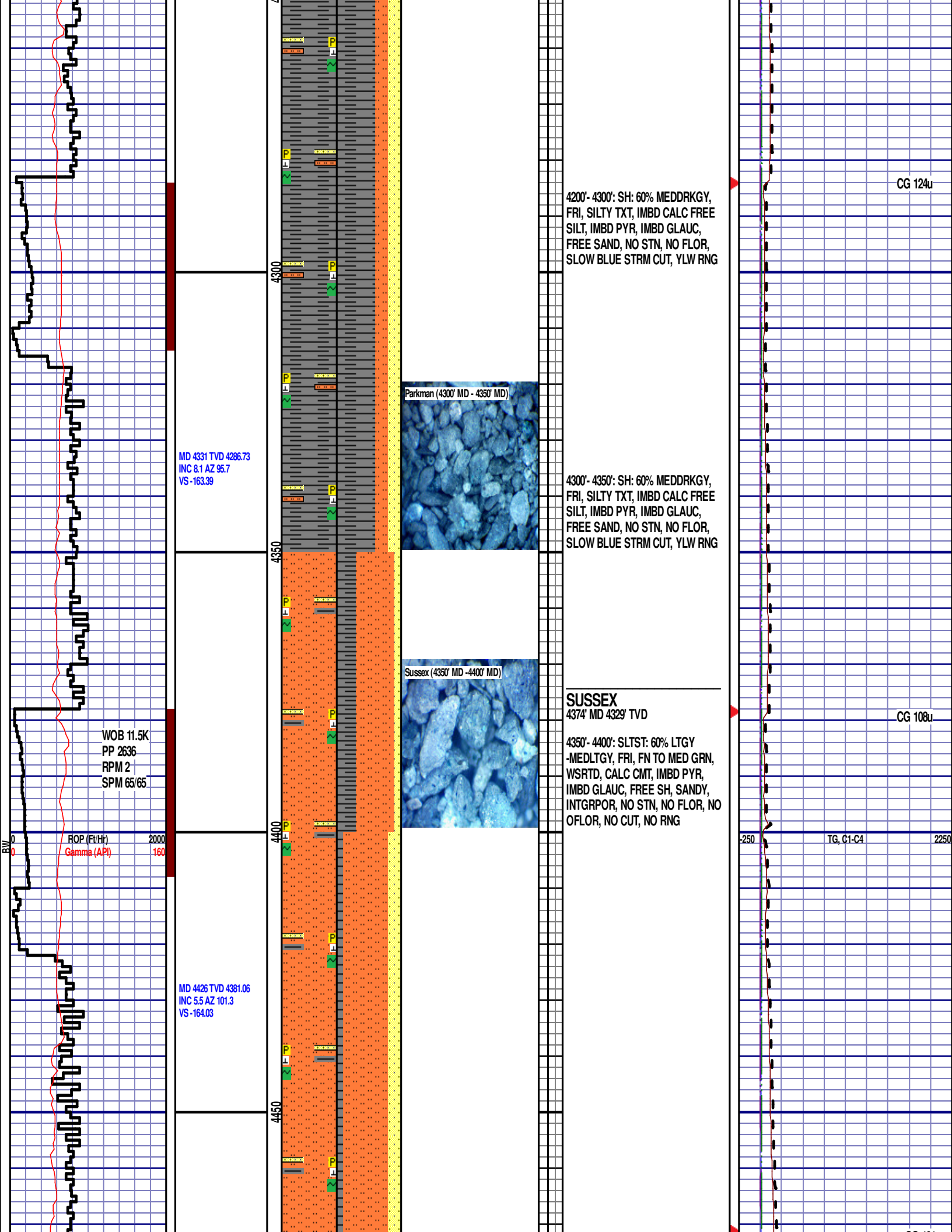
4000'- 4100': SLTST: 70% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
IMBD GLAUC, FREE SH, SANDY,
INTGRPOR, NO STN, NO FLOR, NO
OFLO, NO CUT, NO RNG

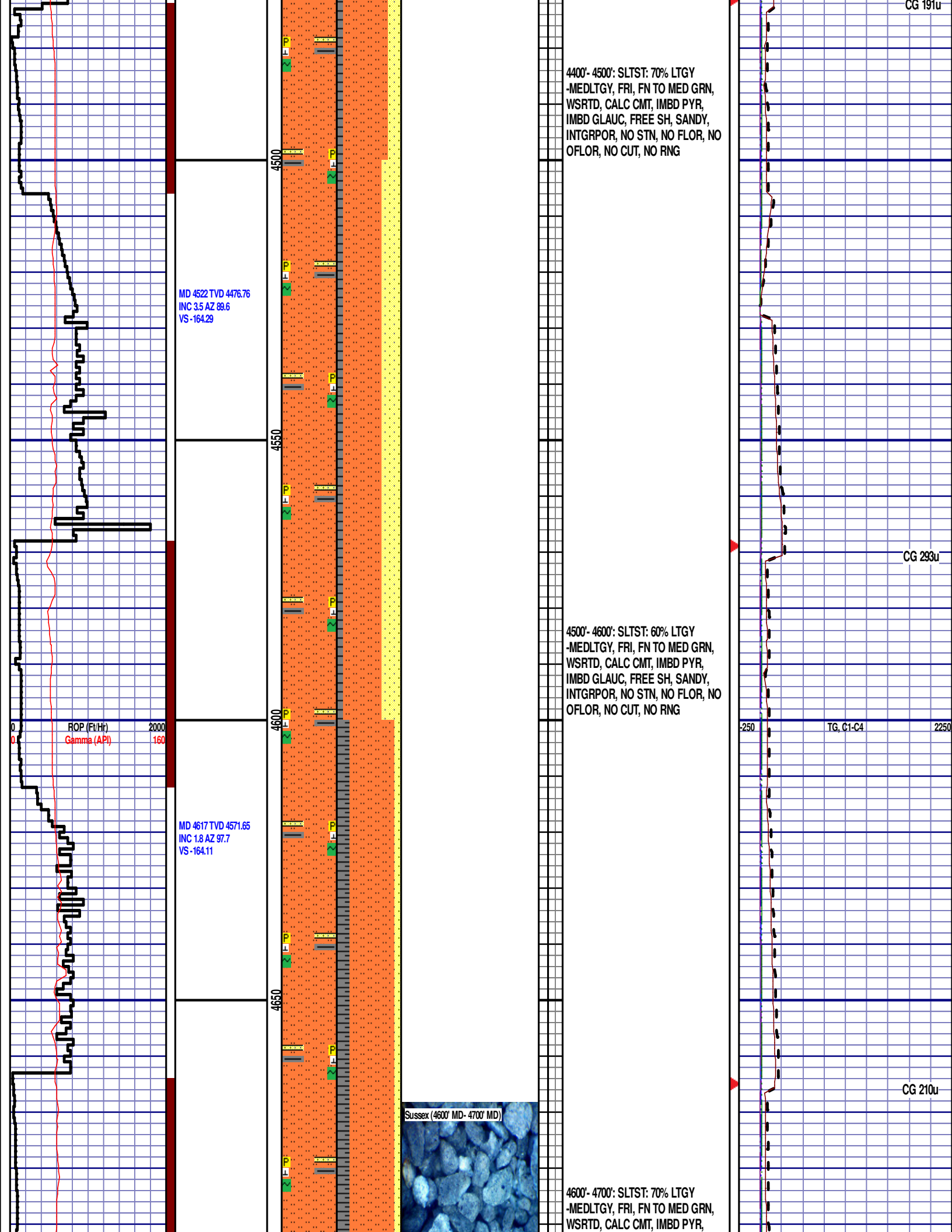
4100'- 4200': SLTST: 55% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
IMBD GLAUC, FREE SH, SANDY,
INTGRPOR, NO STN, NO FLOR, NO
OFLO, NO CUT, NO RNG

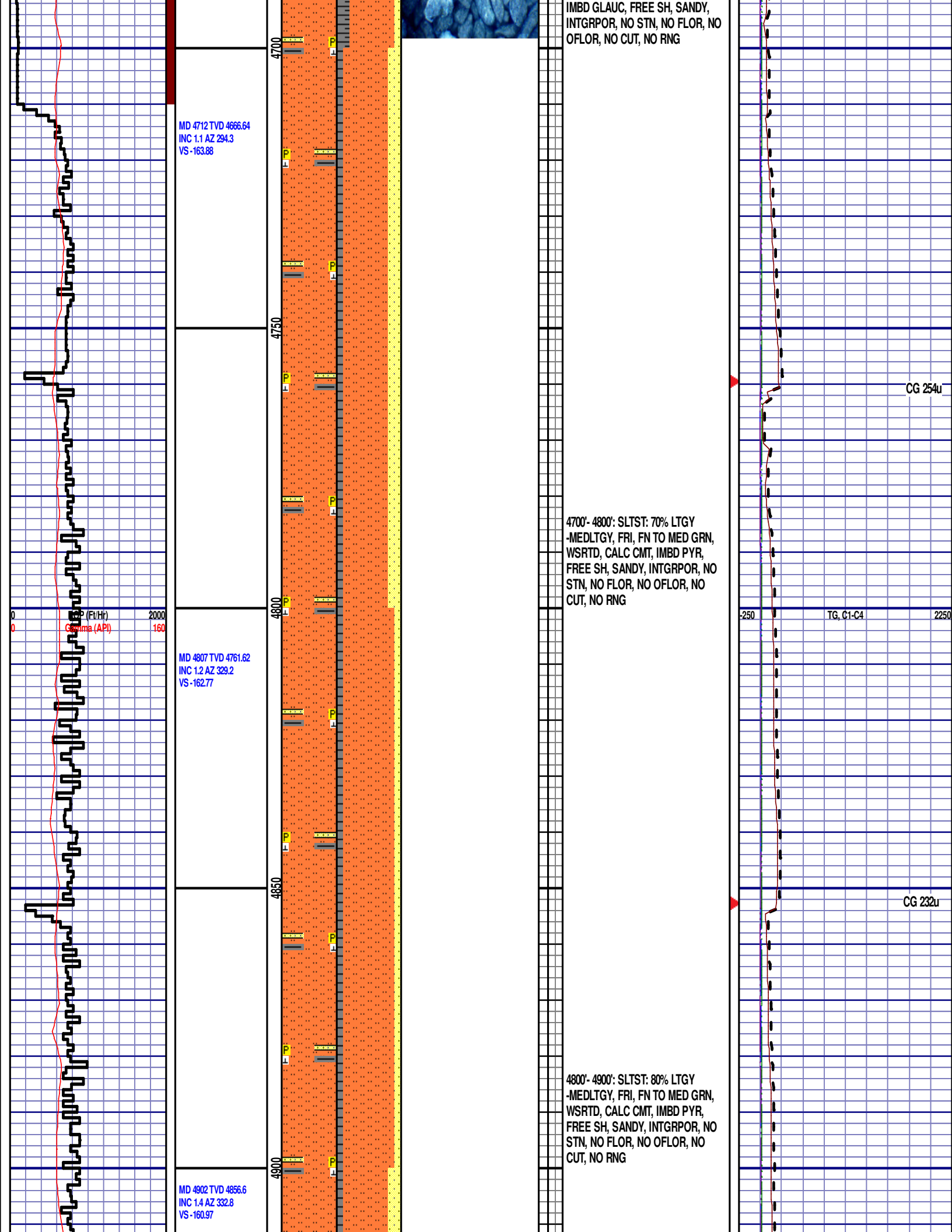
CG 95u

CG 170u

TG, C1-C4







MD 4712 TVD 4666.64
INC 1.1 AZ 294.3
VS -163.88

MD 4807 TVD 4761.62
INC 1.2 AZ 329.2
VS -162.77

MD 4902 TVD 4856.6
INC 1.4 AZ 332.8
VS -160.97

IMBD GLAUC, FREE SH, SANDY,
INTGRPOR, NO STN, NO FLOR, NO
OFLOR, NO CUT, NO RNG

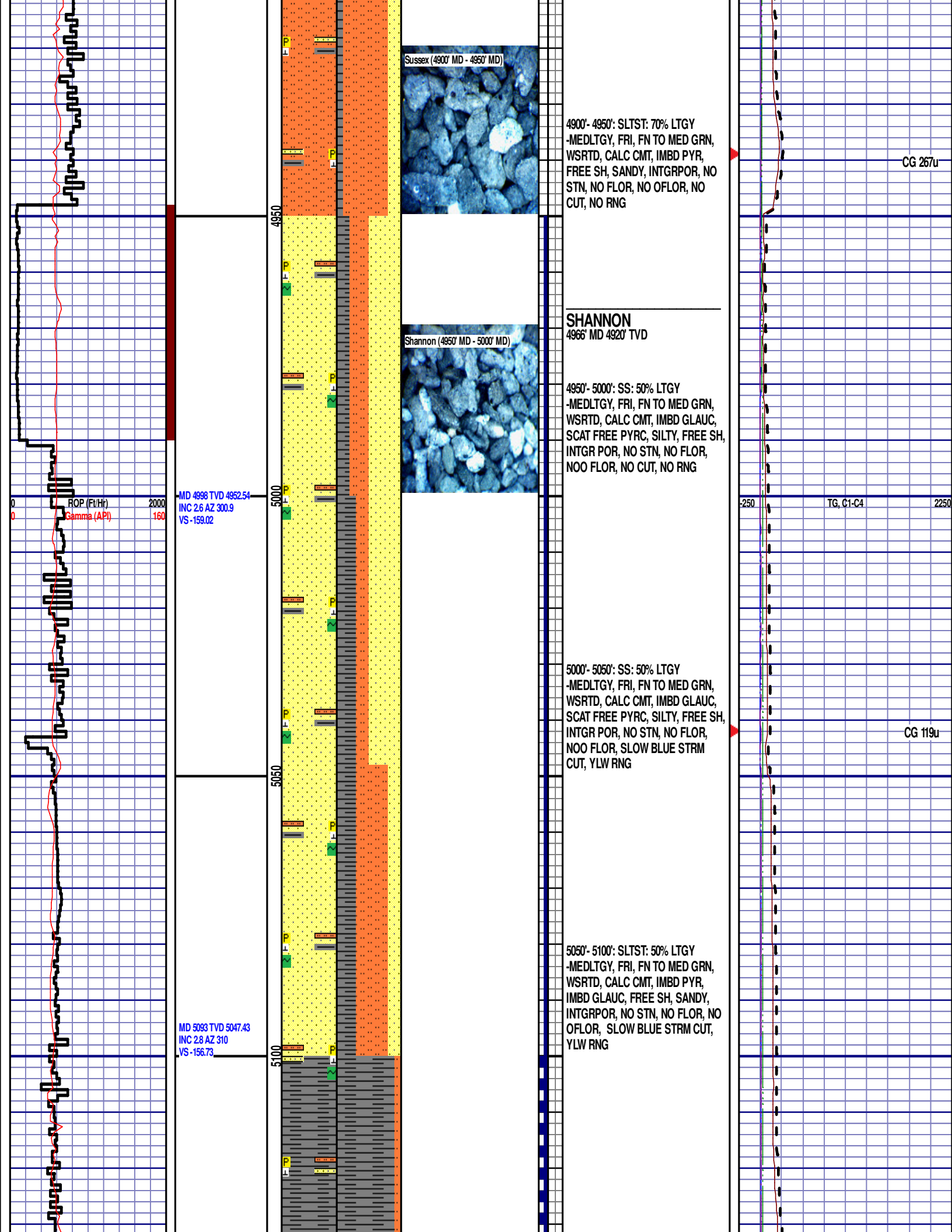
4700'- 4800': SLTST: 70% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
FREE SH, SANDY, INTGRPOR, NO
STN, NO FLOR, NO OFLOR, NO
CUT, NO RNG

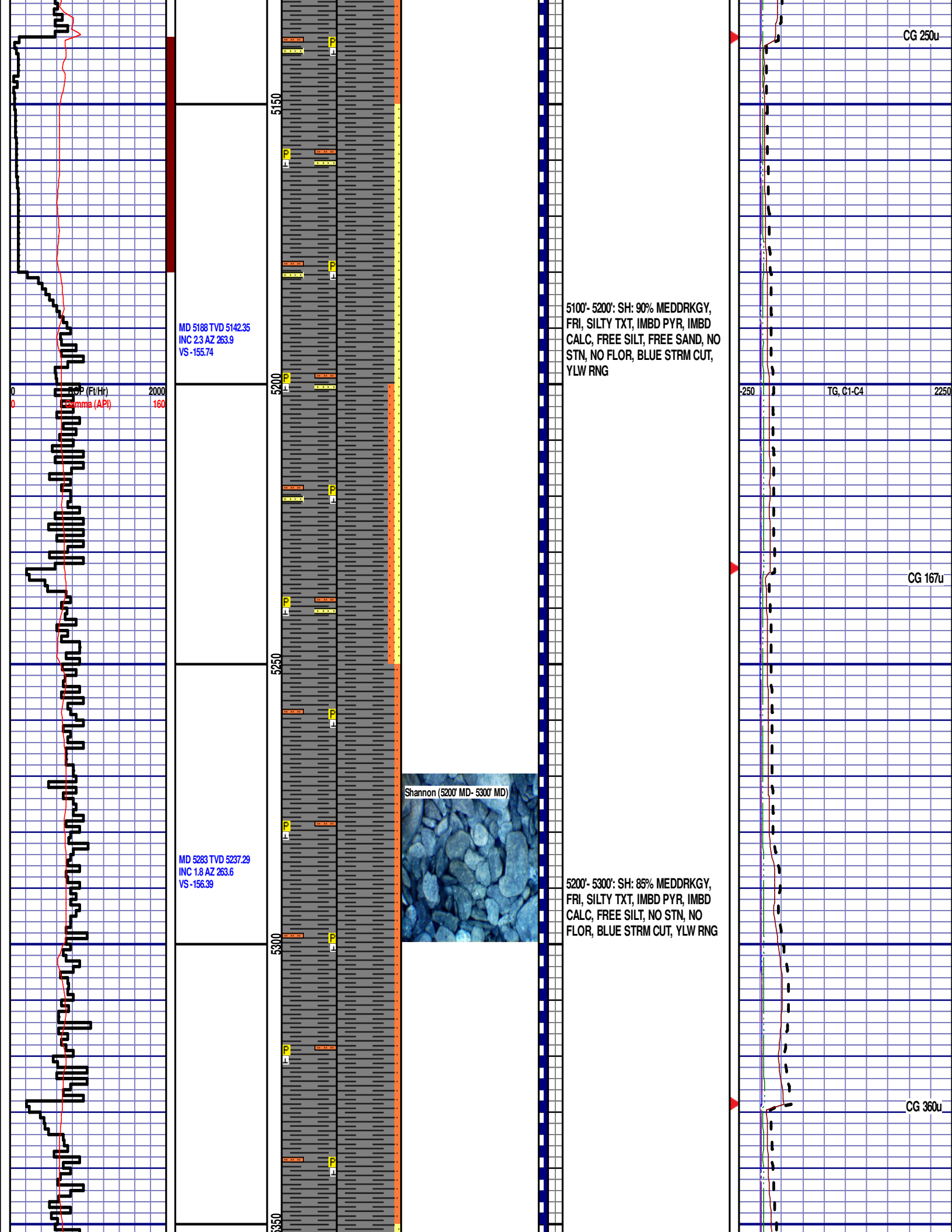
4800'- 4900': SLTST: 80% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
FREE SH, SANDY, INTGRPOR, NO
STN, NO FLOR, NO OFLOR, NO
CUT, NO RNG

CG 254u

CG 232u

TG, C1-C4





CG 250u

MD 5188 TVD 5142.35
INC 2.3 AZ 263.9
VS -155.74

5100'- 5200': SH: 90% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SILT, FREE SAND, NO
STN, NO FLOR, BLUE STRM CUT,
YLW RNG

250 TG, C1-C4 2250

CG 167u

Shannon (5200' MD - 5300' MD)



MD 5283 TVD 5237.29
INC 1.8 AZ 263.6
VS -156.39

5200'- 5300': SH: 85% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SILT, NO STN, NO
FLOR, BLUE STRM CUT, YLW RNG

CG 360u

MD 5378 TVD 5332.26
INC 1.2 AZ 262.2
VS -156.89

MD 5473 TVD 5427.24
INC 0.9 AZ 254.1
VS -157.37

MD 5568 TVD 5522.22

5300'- 5400': SH: 90% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC FREE SILT, FREE SAND, NO
STN, NO FLOR, BLUE STRM CUT,
YLW RNG

5400'- 5500': SH: 90% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SAND, NO STN, NO
FLOR, BLUE STRM CUT, YLW RNG

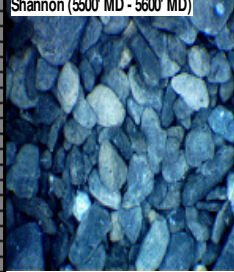
-250 TG, C1-C4 2250

CG 252u

CG 330u

INC 1.1 AZ 243.2
VS -158.11

Shannon (5600' MD - 5600' MD)



5500'- 5600': SH: 95% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SILT, IMBD GLAUC,
FREE SAND, NO STN, NO FLOR,
BLUE STRM CUT, YLW RNG

250 TG, C1-C4 2250

CG 186u

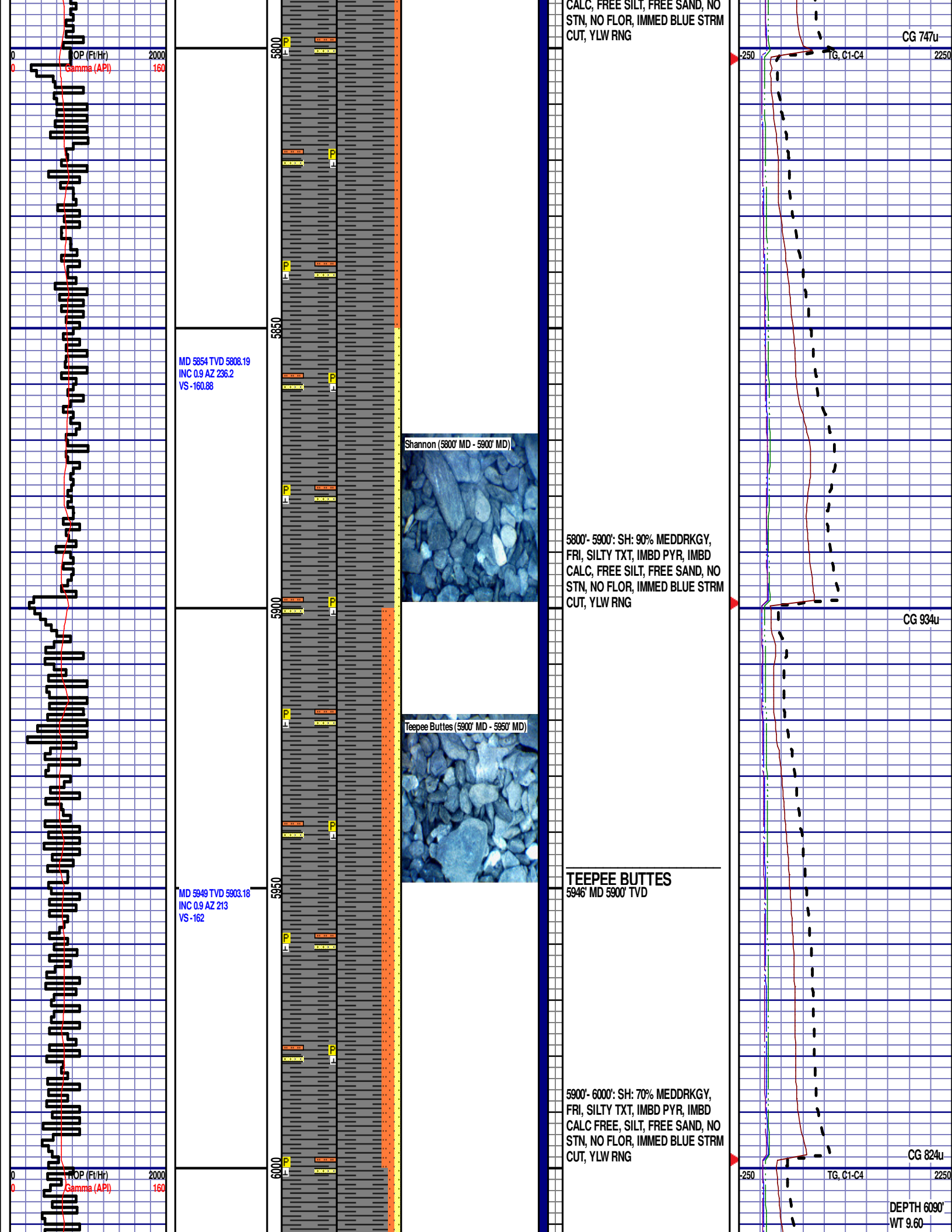
MD 5664 TVD 5618.21
INC 1.1 AZ 245.8
VS -159.04

5600'- 5700': SH: 85% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SILT, FREE SAND,
IMBD GLAUC, NO STN, NO FLOR,
BLUE STRM CUT, YLW RNG

CG 518u

MD 5759 TVD 5713.2
INC 0.7 AZ 220.7
VS -159.95

5700'- 5800': SH: 90% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD



CALC, FREE SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

CG 747u

2250

TG, C1-C4

-250

MD 5854 TVD 5808.19
INC 0.9 AZ 236.2
VS -160.88

Shannon (5800' MD - 5900' MD)

5800'- 5900': SH: 90% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

CG 934u

Teepee Buttes (5900' MD - 5950' MD)

TEEPEE BUTTES
5946' MD 5900' TVD

MD 5949 TVD 5903.18
INC 0.9 AZ 213
VS -162

5900'- 6000': SH: 70% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC FREE, SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

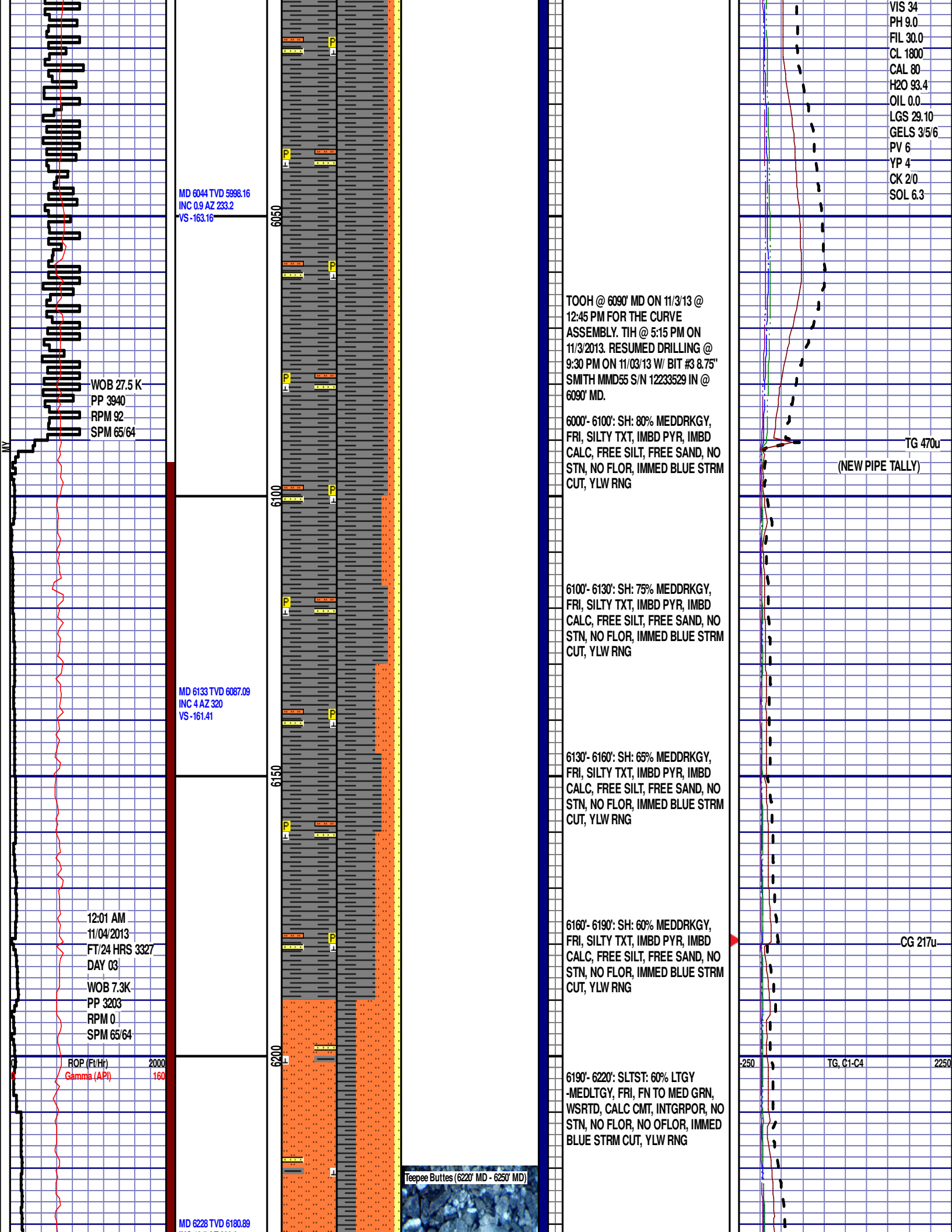
CG 824u

2250

TG, C1-C4

-250

DEPTH 6090'
WT 9.60



MD 6044 TVD 5998.16
INC 0.9 AZ 233.2
VS -163.16

WOB 27.5 K
PP 3940
RPM 92
SPM 65/64

MD 6133 TVD 6087.09
INC 4 AZ 320
VS -161.41

12:01 AM
11/04/2013
FT/24 HRS 3327
DAY 03
WOB 7.3K
PP 3203
RPM 0
SPM 65/64

ROP (Ft/Hr) 2000
Gamma (API) 160

MD 6228 TVD 6180.89

TOOH @ 6090' MD ON 11/3/13 @
12:45 PM FOR THE CURVE
ASSEMBLY. TIH @ 5:15 PM ON
11/3/2013. RESUMED DRILLING @
9:30 PM ON 11/03/13 W/ BIT #3 8.75"
SMITH MMD55 S/N 12233529 IN @
6090' MD.

6000'- 6100': SH: 80% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

6100'- 6130': SH: 75% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

6130'- 6160': SH: 65% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

6160'- 6190': SH: 60% MEDDRKGY,
FRI, SILTY TXT, IMBD PYR, IMBD
CALC, FREE SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

6190'- 6220': SLTST: 60% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, INTGRPOR, NO
STN, NO FLOR, NO OFLOR, IMMED
BLUE STRM CUT, YLW RNG

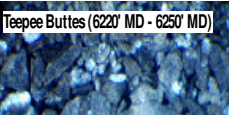
VIS 34
PH 9.0
FIL 30.0
CL 1800
CAL 80
H2O 93.4
OIL 0.0
LGS 29.10
GELS 3/5/6
PV 6
YP 4
CK 2/0
SOL 6.3

TG 470u
(NEW PIPE TALLY)

CG 217u

TG, C1-C4

Teepee Buttes (6220' MD - 6250' MD)



INC 13.5 AZ 338.6
VS -149.07

MD 6324 TVD 6271.75
INC 23.7 AZ 341.1
VS -121.26

MD 6371 TVD 6313.67
INC 30 AZ 346.6
VS -101.42

MD 6419 TVD 6354.7
INC 32.5 AZ 347.3
VS -77.7

ROP (Ft/Hr)
Gamma (API)

2000
160

6250

6300

6350

6400

6450



6220'- 6250': SLTST: 65% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
INTGRPOR, NO STN, NO FLOR, NO
OFLO, IMMED BLUE STRM CUT,
YLW RNG

6250'- 6280': SLTST: 70% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
INTGRPOR, NO STN, NO FLOR, NO
OFLO, IMMED BLUE STRM CUT,
YLW RNG

6280'- 6310': SLTST: 60% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
INTGRPOR, NO STN, NO FLOR, NO
OFLO, IMMED BLUE STRM CUT,
YLW RNG

6310'- 6340': SLTST: 55% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
INTGRPOR, NO STN, NO FLOR, NO
OFLO, IMMED BLUE STRM CUT,
YLW RNG

6340'- 6370': SH: 55% MEDDRKGY,
FRI, SILTY TXT, IMBD CALC, IMBD
PYR, FREE SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

6370'- 6400': SH: 60% MEDDRKGY,
FRI, SILTY TXT, IMBD CALC, IMBD
PYR, FREE SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

6400'- 6430': SH: 75% MEDDRKGY,
FRI, SILTY TXT, IMBD CALC, IMBD
PYR, FREE SILT, FREE SAND, NO
STN, NO FLOR, IMMED BLUE STRM
CUT, YLW RNG

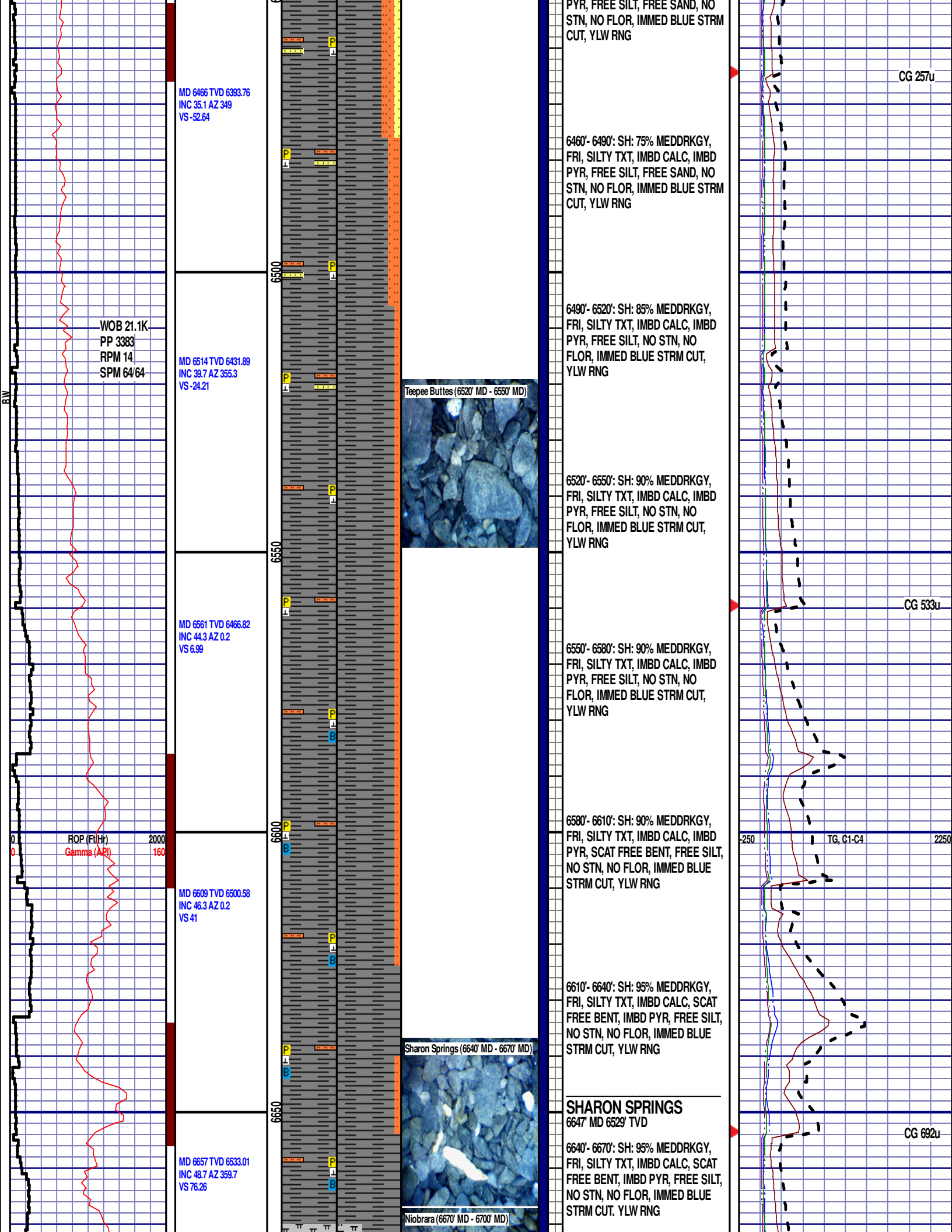
6430'- 6460': SH: 70% MEDDRKGY,
FRI, SILTY TXT, IMBD CALC, IMBD

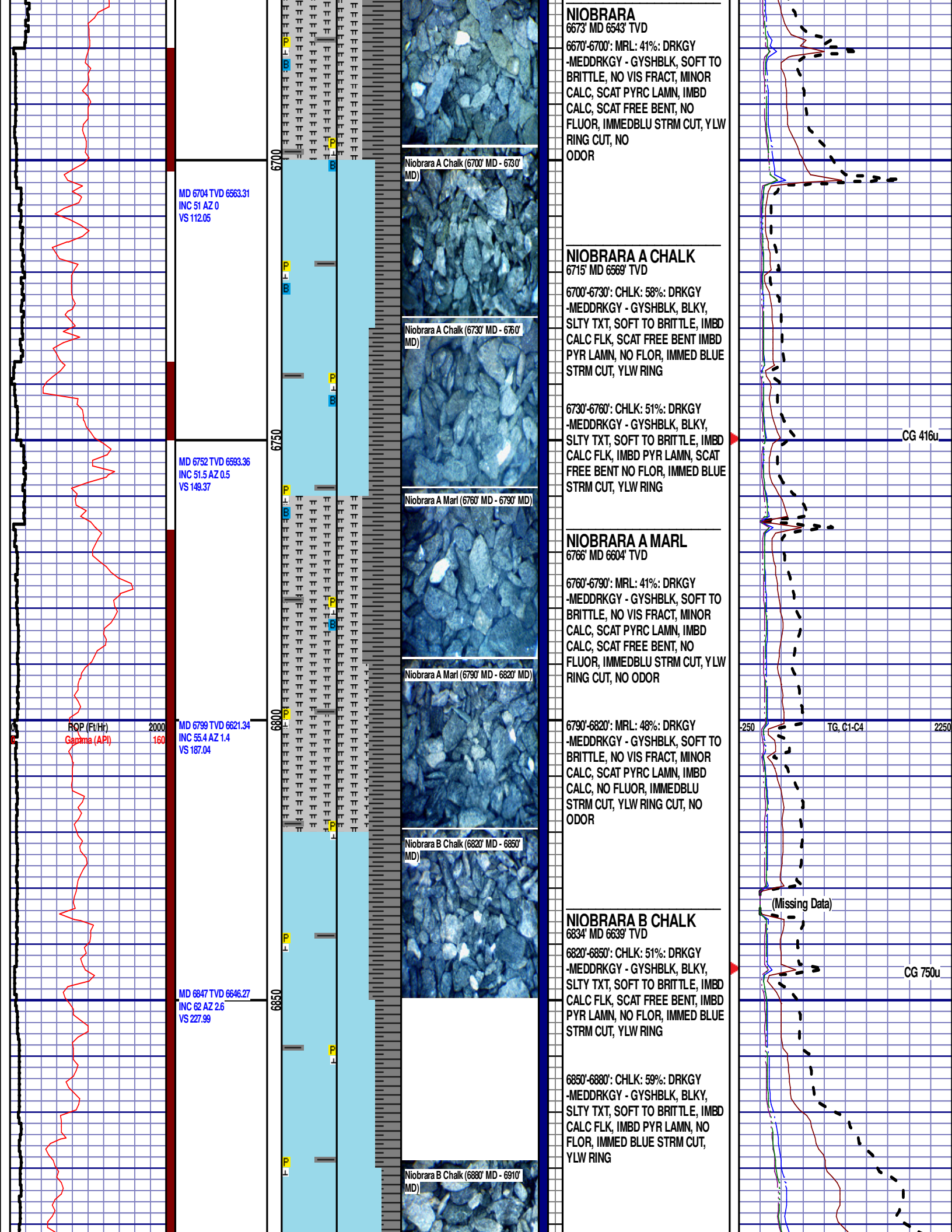
CG 345u

CG 498u

TG, C1-C4

DEPTH 6399'
WT 10.5
VIS 45'
PH 9.0
FIL 7.2
CL 1750
CAL 80
H2O 90.0
OIL 0.0
LGS 29.84
GELS 5'10"/11
PV 14
YP 16
CK 2/0
SOL 9.7





MD 6704 TVD 6563.31
INC 51 AZ 0
VS 112.05

MD 6752 TVD 6593.36
INC 51.5 AZ 0.5
VS 149.37

ROP (Ft/Hr)
Gamma (API)

2000
160

MD 6799 TVD 6621.34
INC 55.4 AZ 1.4
VS 187.04

MD 6847 TVD 6646.27
INC 62 AZ 2.6
VS 227.99

Niobrara A Chalk (6700' MD - 6730' MD)

Niobrara A Chalk (6730' MD - 6760' MD)

Niobrara A Marl (6760' MD - 6790' MD)

Niobrara A Marl (6790' MD - 6820' MD)

Niobrara B Chalk (6820' MD - 6850' MD)

Niobrara B Chalk (6880' MD - 6910' MD)

NIOBRARA
6673' MD 6543' TVD

6670'-6700': MRL: 41%: DRKGY
-MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, SCAT FREE BENT, NO FLUOR, IMMEDBLU STRM CUT, YLW RING CUT, NO ODOR

NIOBRARA A CHALK
6715' MD 6569' TVD

6700'-6730': CHLK: 58%: DRKGY
-MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, SCAT FREE BENT IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING

6730'-6760': CHLK: 51%: DRKGY
-MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, IMBD PYR LAMN, SCAT FREE BENT NO FLOR, IMMED BLUE STRM CUT, YLW RING

NIOBRARA A MARL
6766' MD 6604' TVD

6760'-6790': MRL: 41%: DRKGY
-MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, SCAT FREE BENT, NO FLUOR, IMMEDBLU STRM CUT, YLW RING CUT, NO ODOR

6790'-6820': MRL: 48%: DRKGY
-MEDDRKGY - GYSHBLK, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, SCAT PYRC LAMN, IMBD CALC, NO FLUOR, IMMEDBLU STRM CUT, YLW RING CUT, NO ODOR

NIOBRARA B CHALK
6834' MD 6639' TVD

6820'-6850': CHLK: 51%: DRKGY
-MEDDRKGY - GYSHBLK, BLKY, SLTY TXT, SOFT TO BRITTLE, IMBD CALC FLK, SCAT FREE BENT, IMBD PYR LAMN, NO FLOR, IMMED BLUE STRM CUT, YLW RING

6850'-6880': 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

CG 416u

TG, C1-C4

CG 750u

(Missing Data)

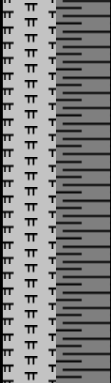
MD 6895 TVD 6666.24
INC 68.8 AZ 2.4
VS 271.57

MD 6942 TVD 6681.96
INC 72.1 AZ 2.6
VS 315.82

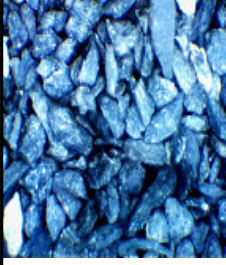
6900

6950

00



Niobrara B Marl (6910' MD - 6940' MD)



6880'-6910': CHLK: 69%: DRKGY
-MEDDRKGY - GYSHBLK, BLKY,
SLTY TXT, SOFT TO BRITTLE, IMBD
CALC FLK, IMBD PYR LAMN, NO
FLOR, IMMED BLUE STRM CUT,
YLW RING

NIOBRARA B MARL

6920' MD 6674' TVD
6910'-6940': MRL: 48%: DRKGY
-MEDDRKGY - GYSHBLK, SOFT TO
BRITTLE, NO VIS FRACT, MINOR
CALC, SCAT PYRC LAMN, SCAT
FREE BENT, IMBD CALC, NO
FLUOR, IMMED BLU STRM CUT,
YLW RING CUT, NO
ODOR

END OF VERTICAL LOG @ 6950'
MD ON 11/4/2013, CONTINUED ON
HORIZONTAL LOG

