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Customer Information

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

Geologist: Teresa Malesardi
Noble Energy Inc.

Mud Logging Details

Logger: Ross Apodaca &
Dan King

Log Interval: 2500' MD to 6700' MD

Start Date: April 25, 2014

Release Date: May 1, 2014

Well Information

Well Name: Wells Ranch
AA35-62-1BHNC

Location: 35-6N-63W
605' FSL, 178' FWL

County: Weld
State: Colorado

Drilling Rig: H&P 277

Total Depth: 11192' MD

TD Date: May 1, 2014

Formation: Niobrara C Chalk

KB Elevation: 4764'

GR Elevation: 4740'

API Number: 05-123-38668-0000

ROCK TYPES

Anhy
Bent
Cht
Clyst
Coal
Congl
Dol

Gyp
Igne
Lmst
Meta
Mrlst
Salt
Shale

Shcol
Chalk
Slst
Ss
Till
gw
Imywash

ogw
olmywash
oshly gw
shly gw
sdygw
hvyrcbsh
nosmpl

Lsdetrit
sltst
sdy sh

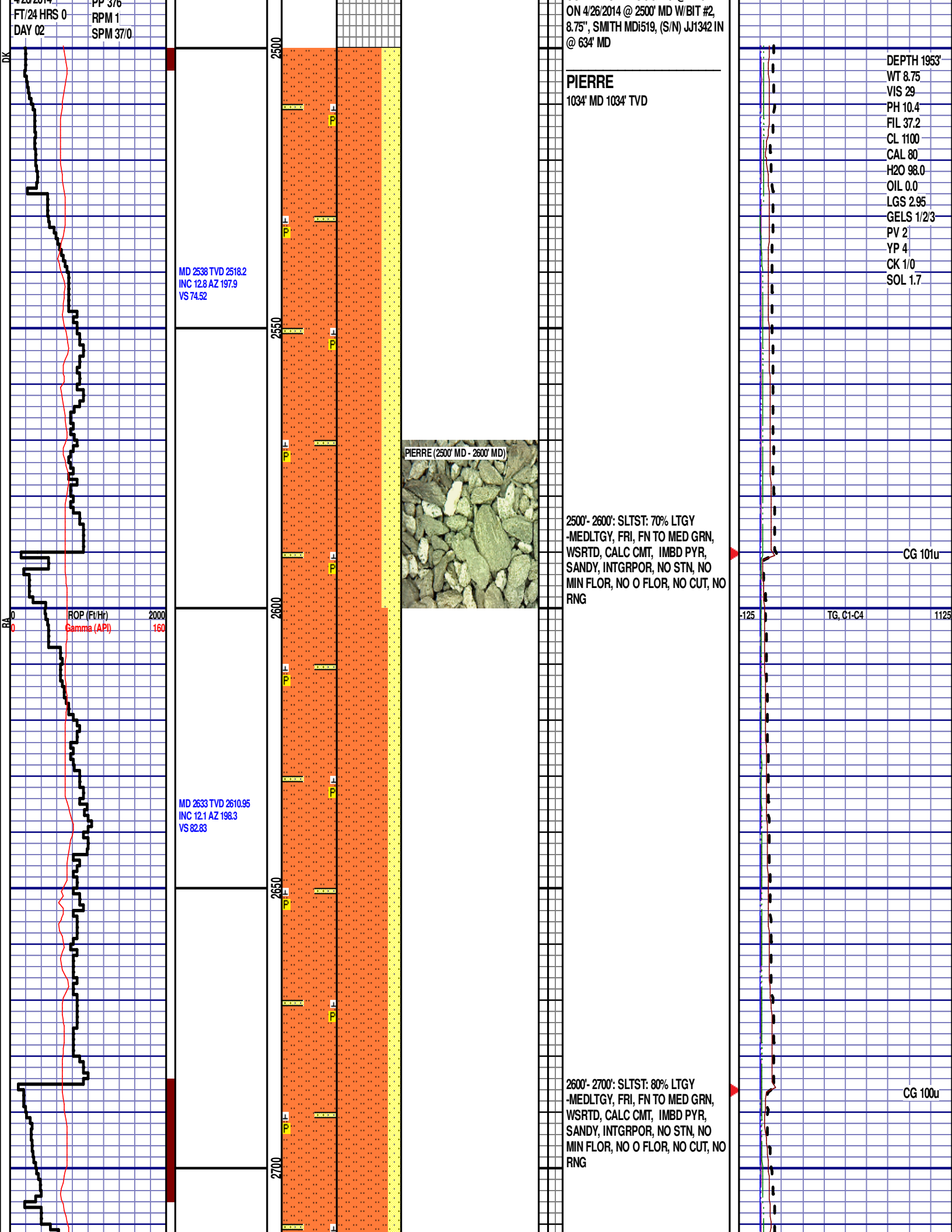
ROP (Ft/Hr) Gamma (API)	Drill Depth v. Time	Survey Data	Depth	Lithology	Lithology Percentages	Sample Photographs	Porosity	Geological Description	TG (1-8) C1 (units) C2 (units) C3 (units) C4 (units)	Total Gas, C1-C4
12:01 AM 4/26/2014	WOB 26.0K		24					NOBLE ENERGY INC WELLS RANCH AA35-62-1BHNC 35-6N-63W 605' FSL, 178' FWL WELD CO., CO H&P 277 LOGGERS: ROSS APODACA DAN KING CALLED OUT BY COMPANY MAN ON 4/25/2014 COMMENCED LOGGING @ 4:45 AM	-125 TG, C1-C4 1125	

FT/24 HRS 0
DAY 02

PP 376
RPM 1
SPM 37/0

DK

RA



ON 4/26/2014 @ 2500' MD W/BIT #2,
8.75", SMITH MDI519, (S/N) JJ1342 IN
@ 634' MD

PIERRE
1034' MD 1034' TVD

MD 2538 TVD 2518.2
INC 12.8 AZ 197.9
VS 74.52

MD 2633 TVD 2610.95
INC 12.1 AZ 198.3
VS 82.83

DEPTH 1953'
WT 8.75
VIS 29
PH 10.4
FIL 37.2
CL 1100
CAL 80
H2O 98.0
OIL 0.0
LGS 2.95
GELS 1/2/3
PV 2
YP 4
CK 1/0
SOL 1.7



2500'- 2600': SLTST: 70% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SANDY, INTGRPOR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

CG 101u

TG, C1-C4

2600'- 2700': SLTST: 80% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SANDY, INTGRPOR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

CG 100u

MD 2728 TVD 2703.75
INC 12.6 AZ 199.4
VS 91.3

ROP (Ft/Hr)
Gamma (API)

2000
160

MD 2822 TVD 2795.4
INC 13.1 AZ 196.6
VS 99.69

MD 2917 TVD 2887.81
INC 13.7 AZ 196.4
VS 108.03

2750

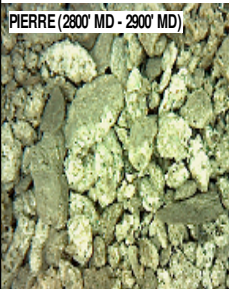
2800

2850

2900

2700'- 2800': SLTST: 80% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SANDY, INTGRPOR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

PIERRE (2800' MD - 2900' MD)



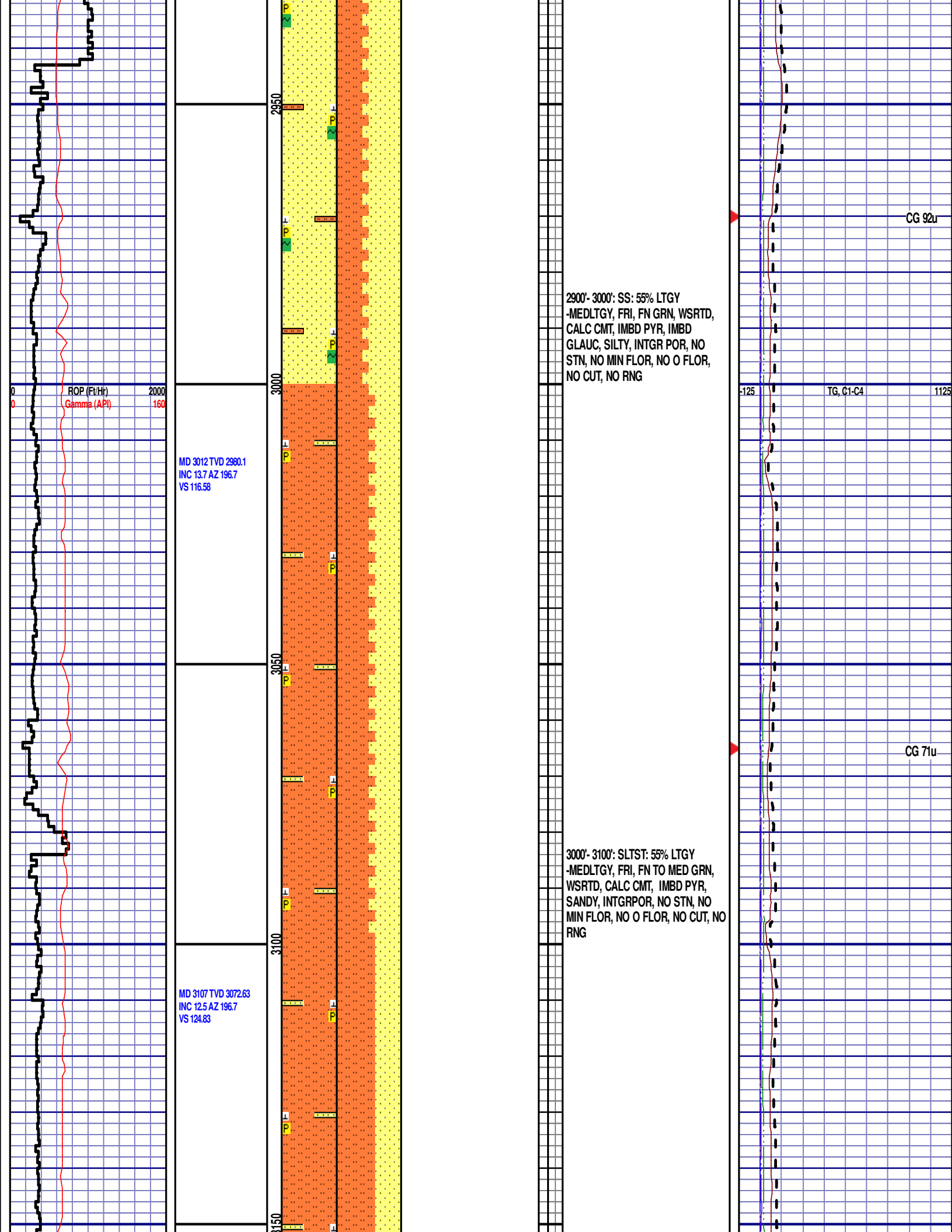
2800'- 2900': SLTST: 60% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
IMBD GLAUC, SANDY, INTGRPOR,
NO STN, NO MIN FLOR, NO O
FLOR, NO CUT, NO RNG

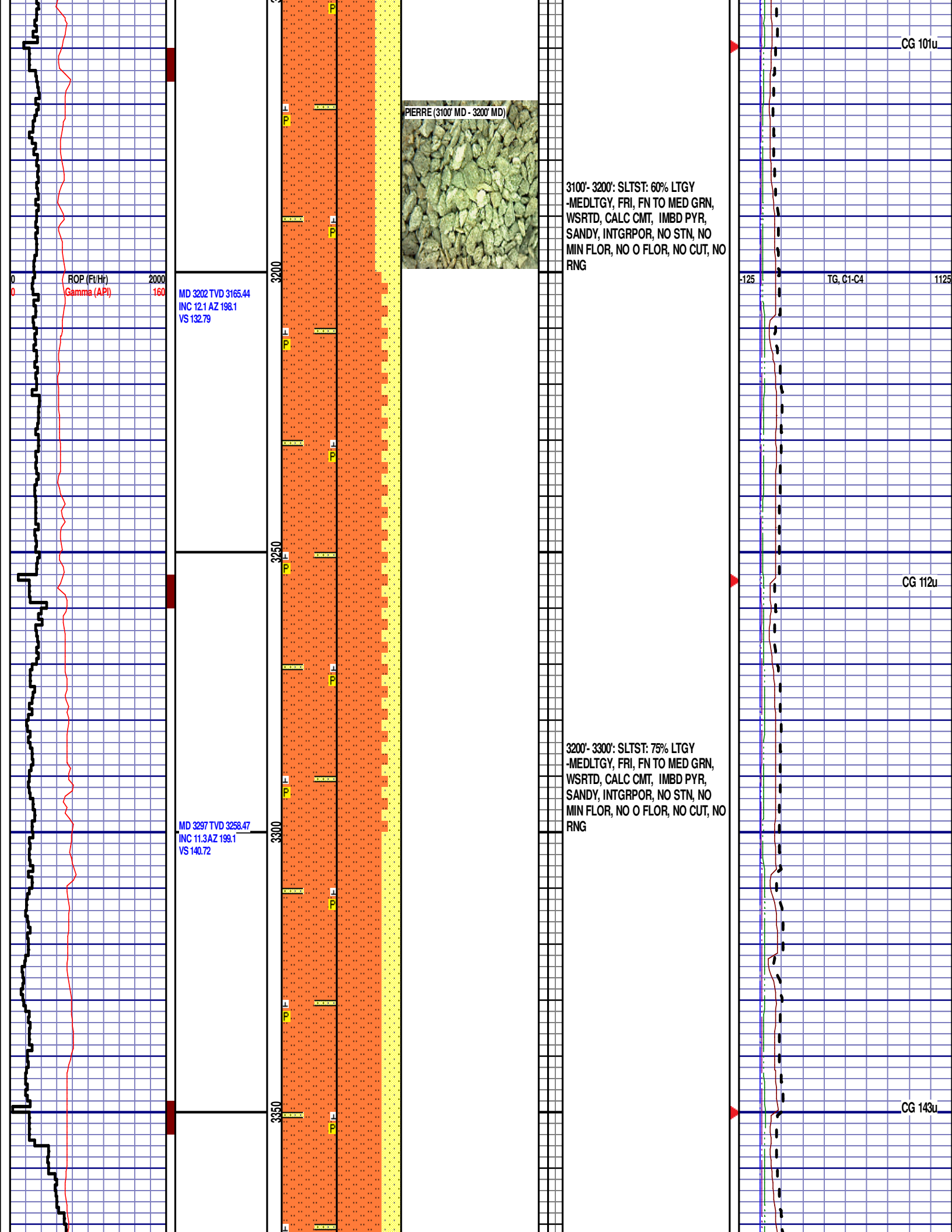
CG 125u

TG, C1-C4

1125

CG 146u



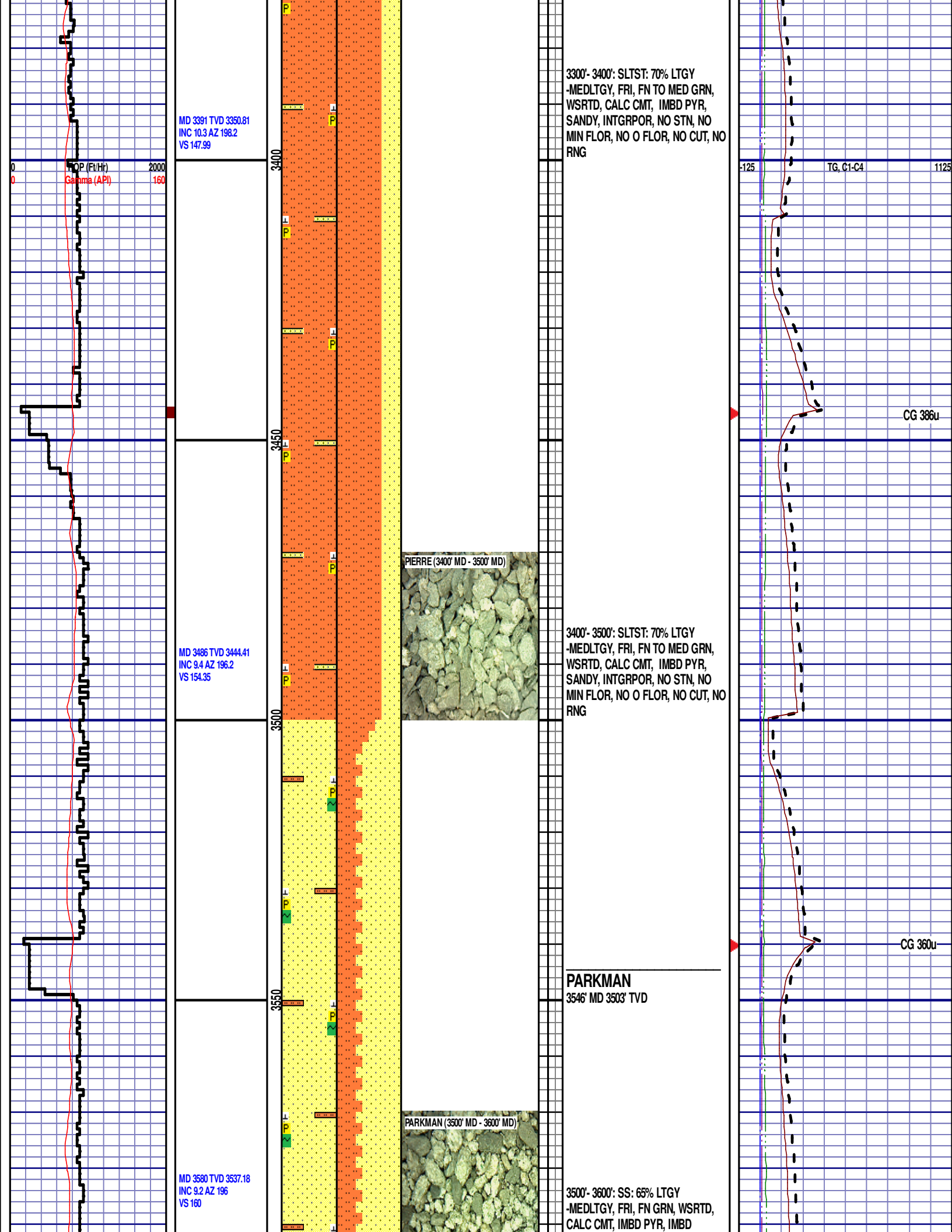


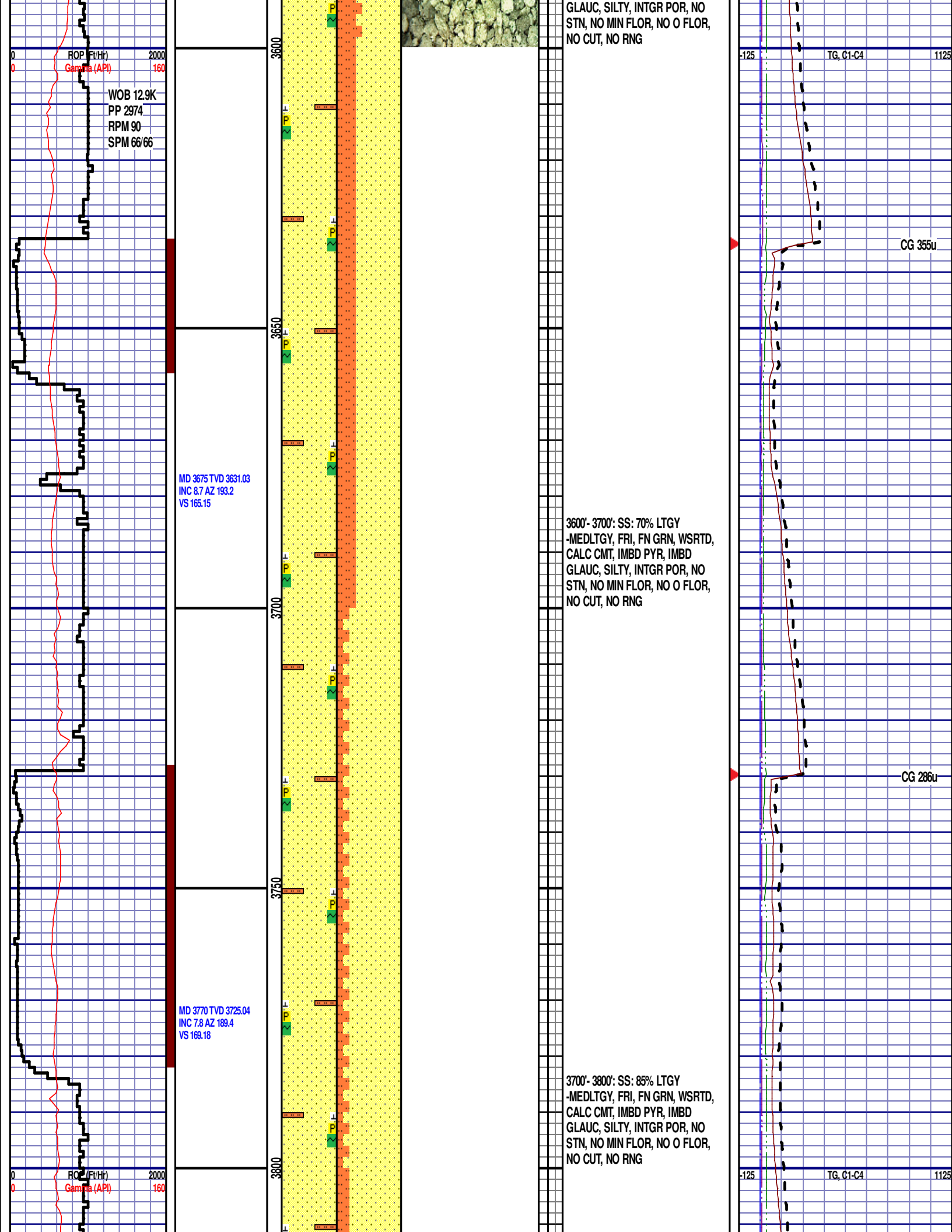
PIERRE (3100' MD - 3200' MD)

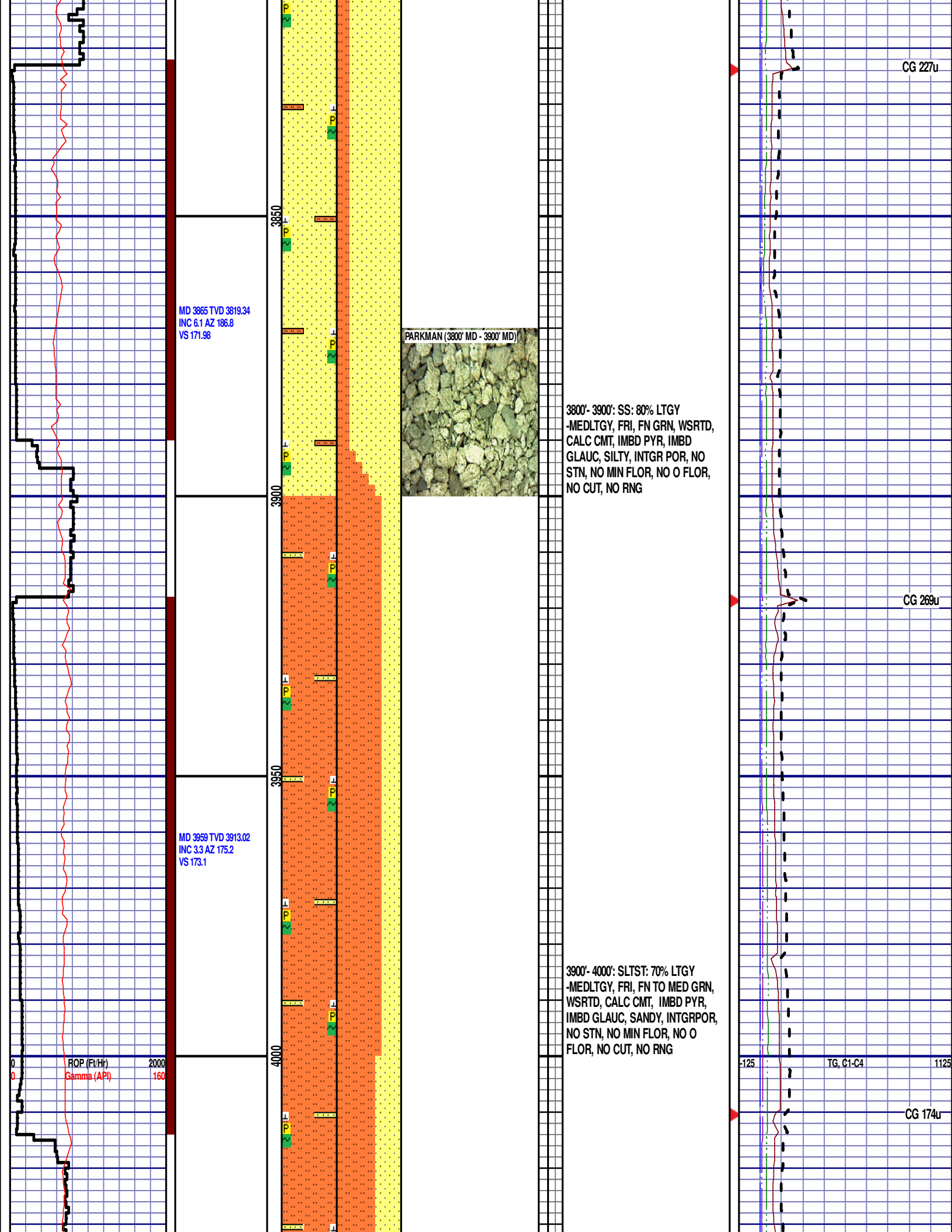


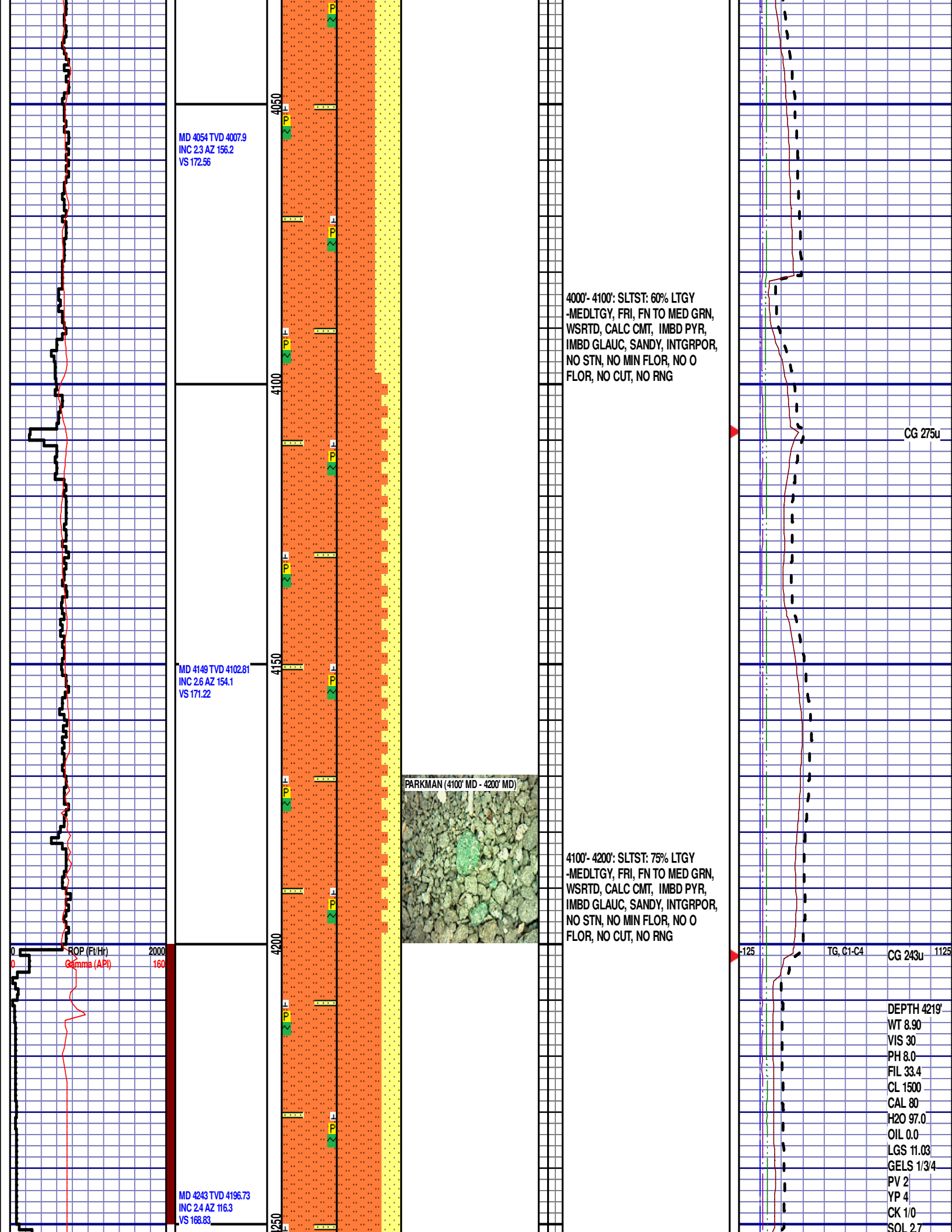
3100'- 3200': SLTST: 60% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SANDY, INTGRPOR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

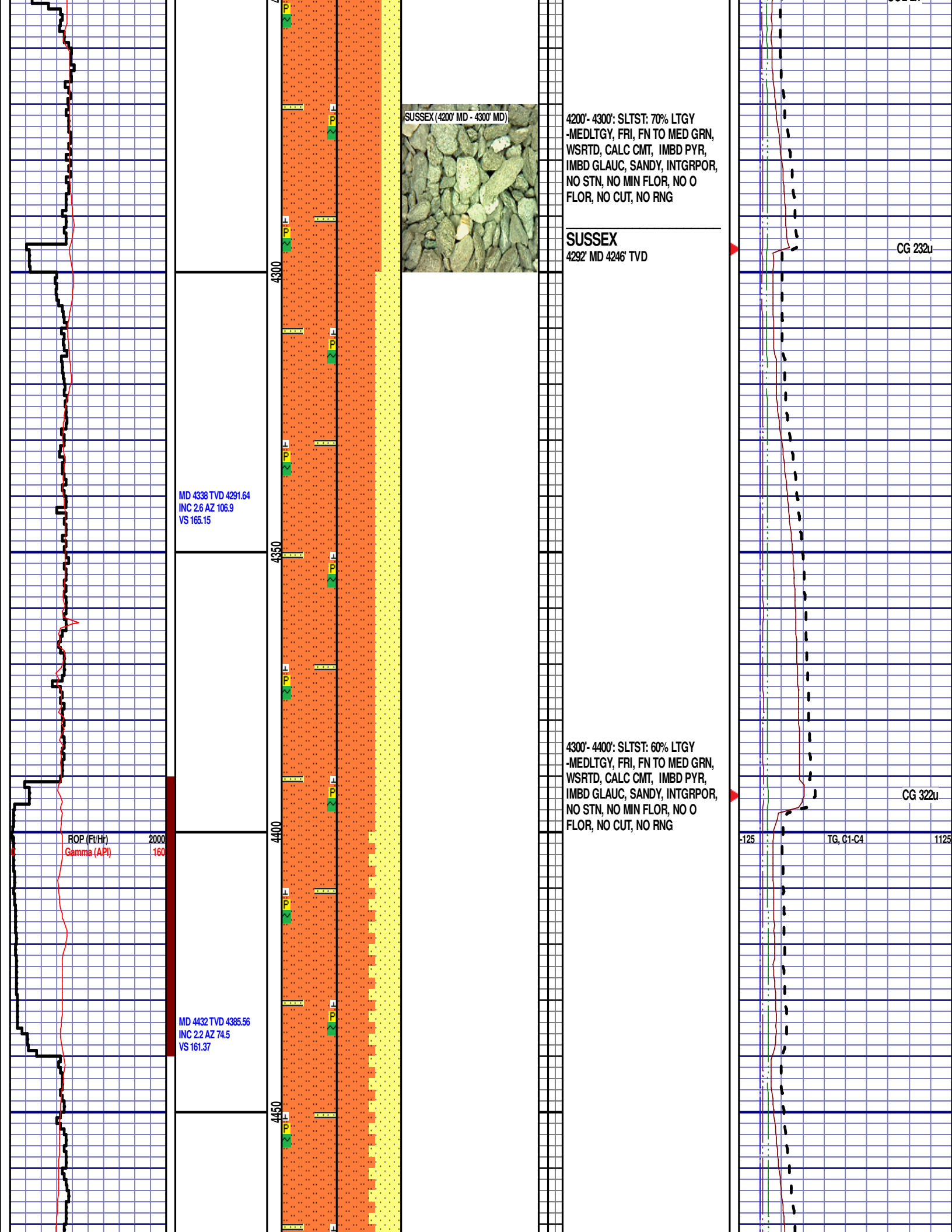
3200'- 3300': SLTST: 75% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SANDY, INTGRPOR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

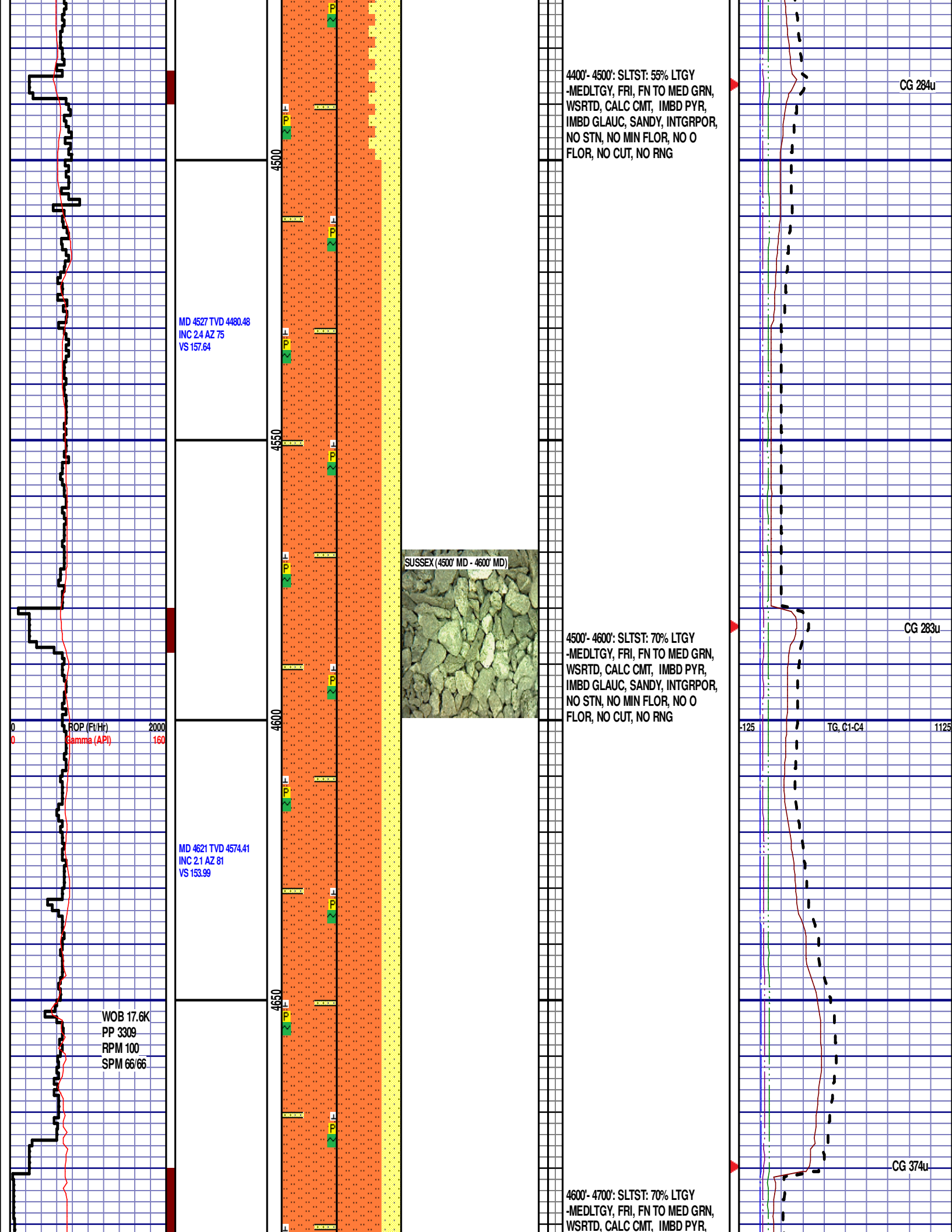


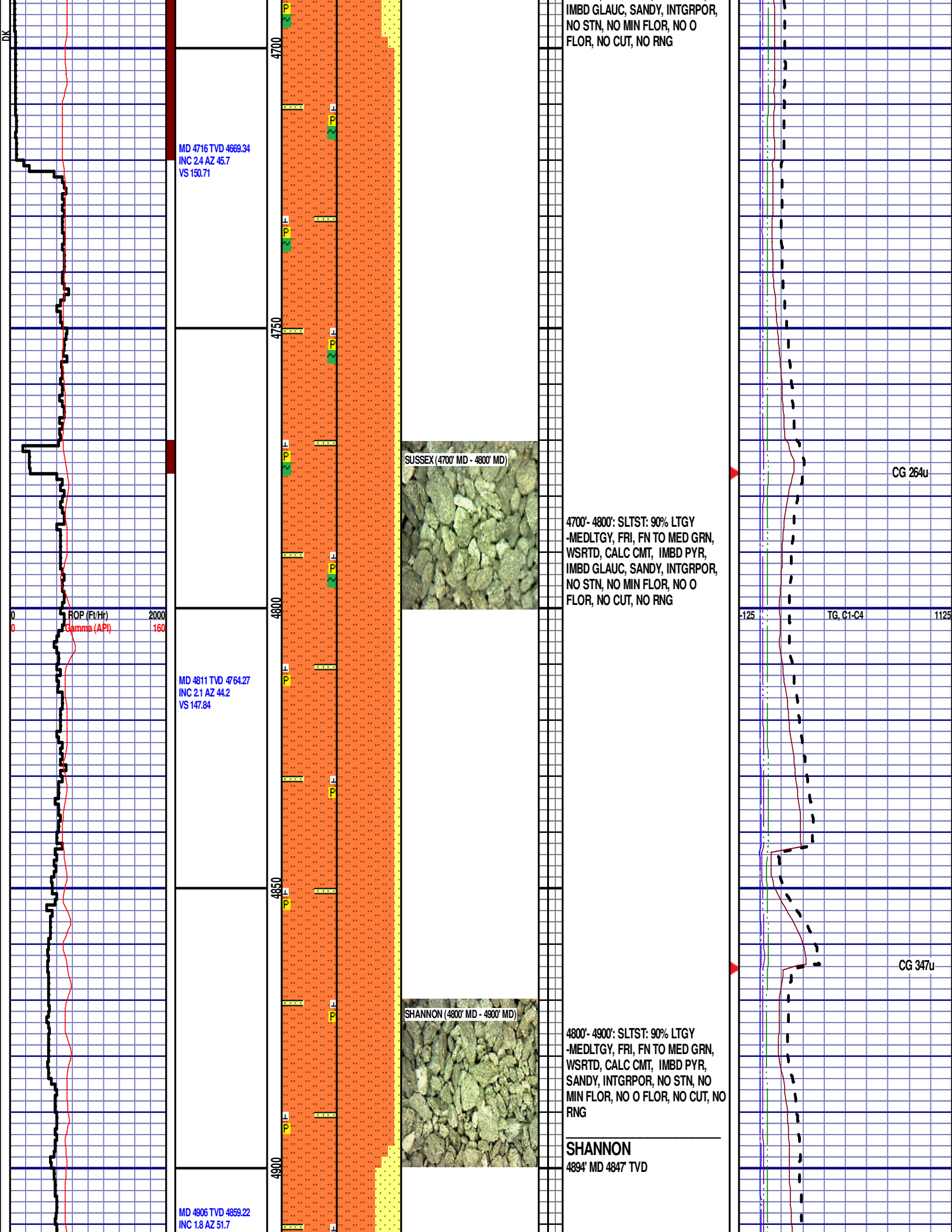












IMBD GLAUC, SANDY, INTGRPOR,
NO STN, NO MIN FLOR, NO O
FLOR, NO CUT, NO RNG

MD 4716 TVD 4669.34
INC 2.4 AZ 45.7
VS 150.71

SUSSEX (4700' MD - 4800' MD)

4700'- 4800': SLTST: 90% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
IMBD GLAUC, SANDY, INTGRPOR,
NO STN, NO MIN FLOR, NO O
FLOR, NO CUT, NO RNG

CG 264u

ROP (Ft/Hr)
Gamma (API)

2000
160

MD 4811 TVD 4764.27
INC 2.1 AZ 44.2
VS 147.84

SHANNON (4800' MD - 4900' MD)

4800'- 4900': SLTST: 90% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR,
SANDY, INTGRPOR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

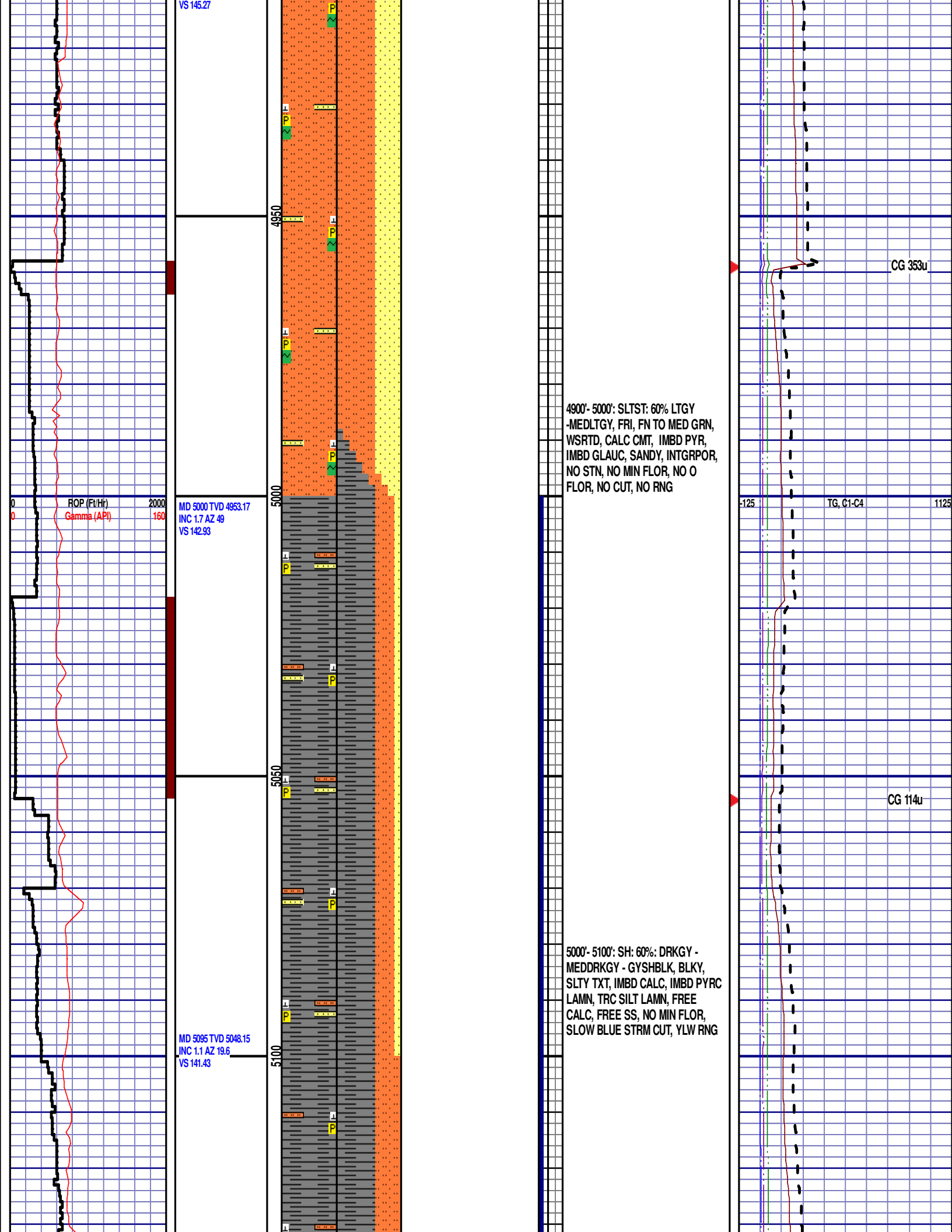
CG 347u

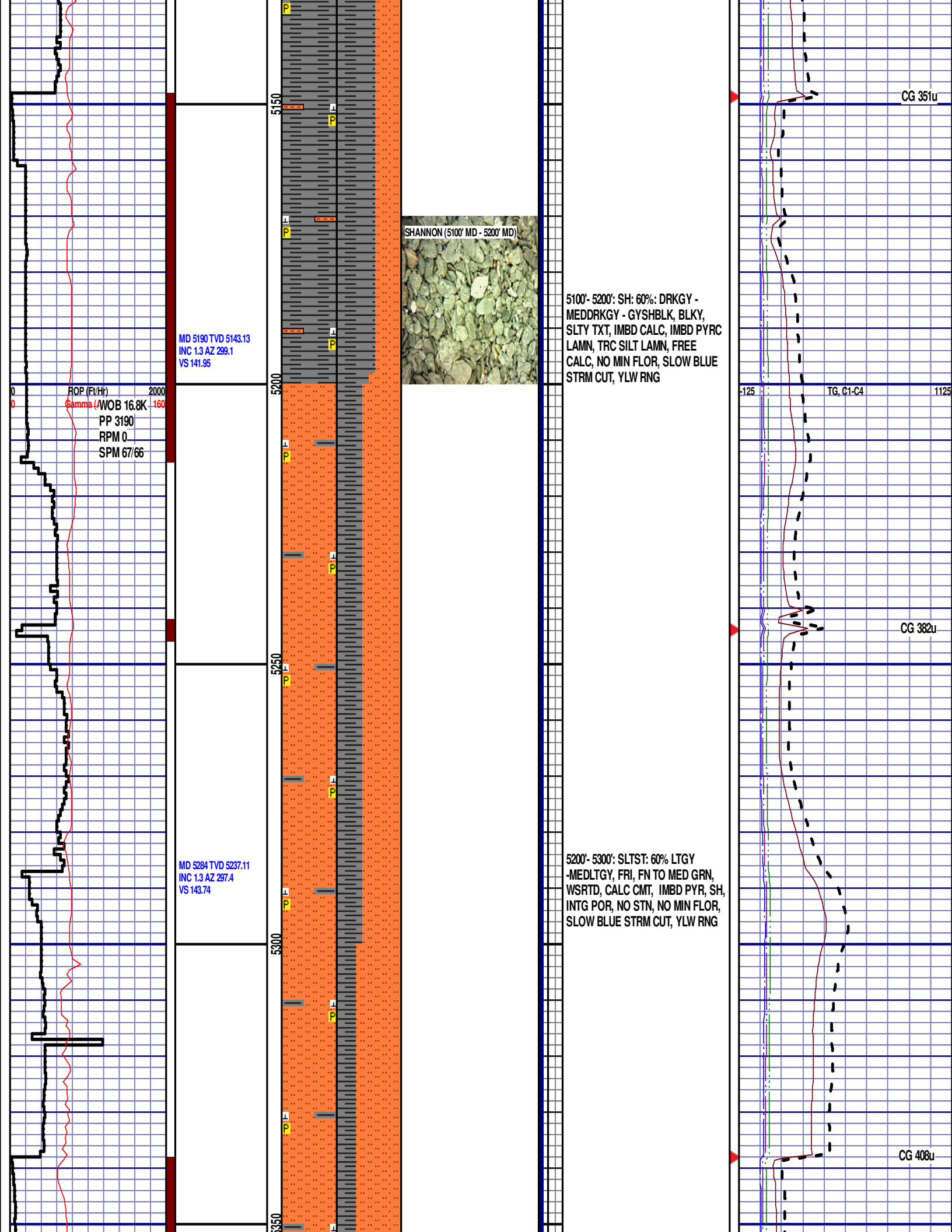
SHANNON

4894' MD 4847' TVD

MD 4906 TVD 4859.22
INC 1.8 AZ 51.7

VS 145.27





MD 5379 TVD 5332.08
INC 1.9 AZ 253.2
VS 146.16

ROP (Ft/Hr)
Gamma (API)

2000
160

5300'- 5400': SLTST: 70% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR, SH,
INTG POR, NO STN, NO MIN FLOR,
SLOW BLUE STRM CUT, YLW RNG

Scale Change
TG, C1-C4

GAS SCALE CHANGE:
-300 TO 2700
(300 UNITS/ DIVISION)

CG 372u

MD 5474 TVD 5427.03
INC 1.6 AZ 259.6
VS 148.97

SHANNON (5400' MD - 5500' MD)



5400'- 5500': SLTST: 60% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR, SH,
INTG POR, NO STN, NO MIN FLOR,
SLOW BLUE STRM CUT, YLW RNG

CG 591u

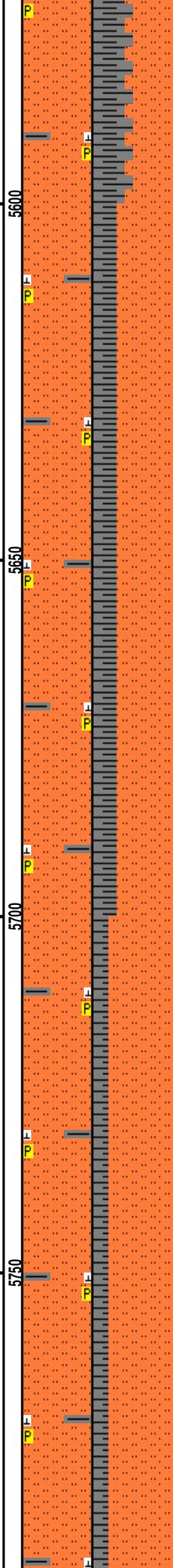
MD 5569 TVD 5522

INC 1.5 AZ 272
VS 151.5

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

MD 5663 TVD 5615.97
INC 1.1 AZ 272.6
VS 153.64

MD 5758 TVD 5710.96
INC 1.1 AZ 267.1
VS 155.45



5500'- 5600': SLTST: 55% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR, SH,
INTG POR, NO STN, NO MIN FLOR,
SLOW BLUE STRM CUT, YLW RNG

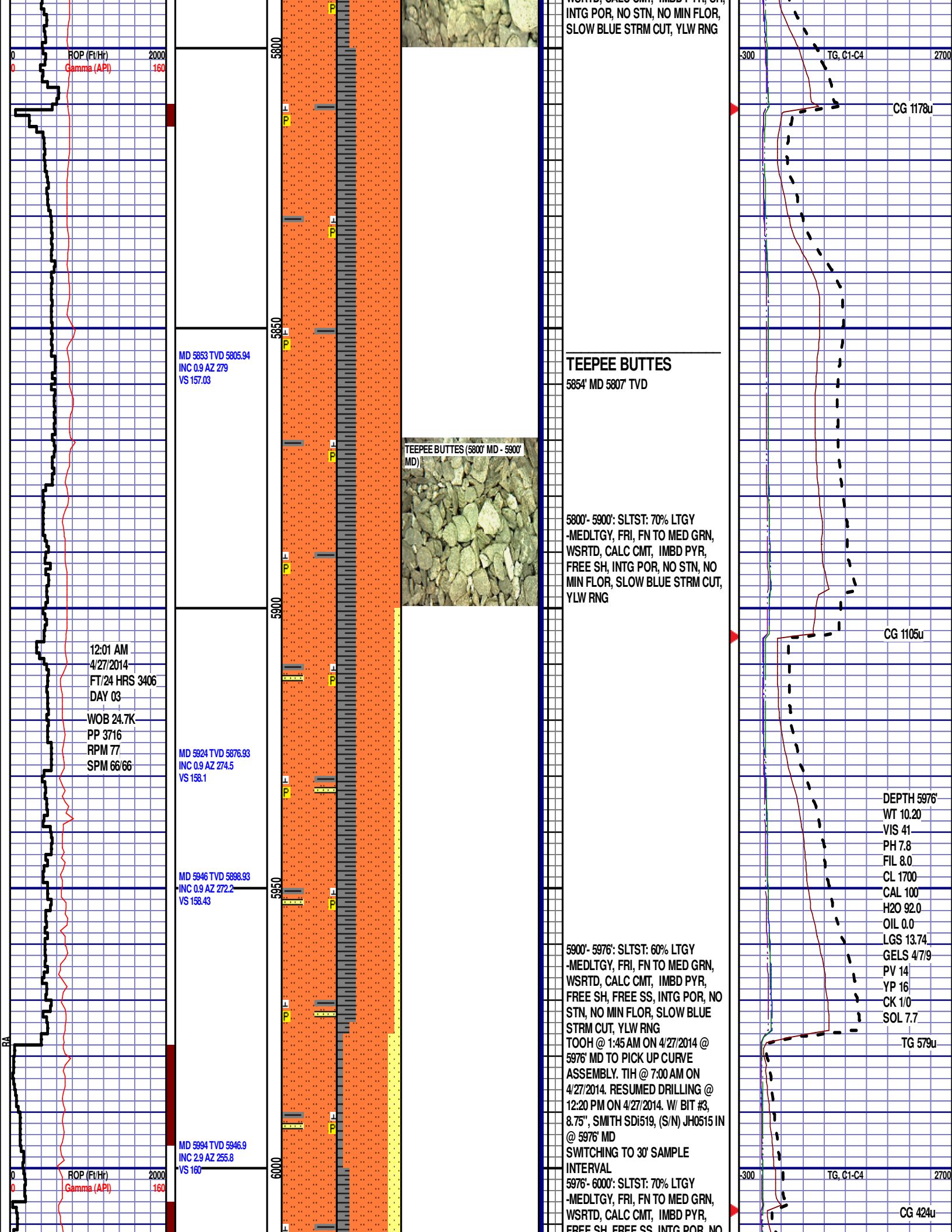
5600'- 5700': SLTST: 70% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR, SH,
INTG POR, NO STN, NO MIN FLOR,
SLOW BLUE STRM CUT, YLW RNG

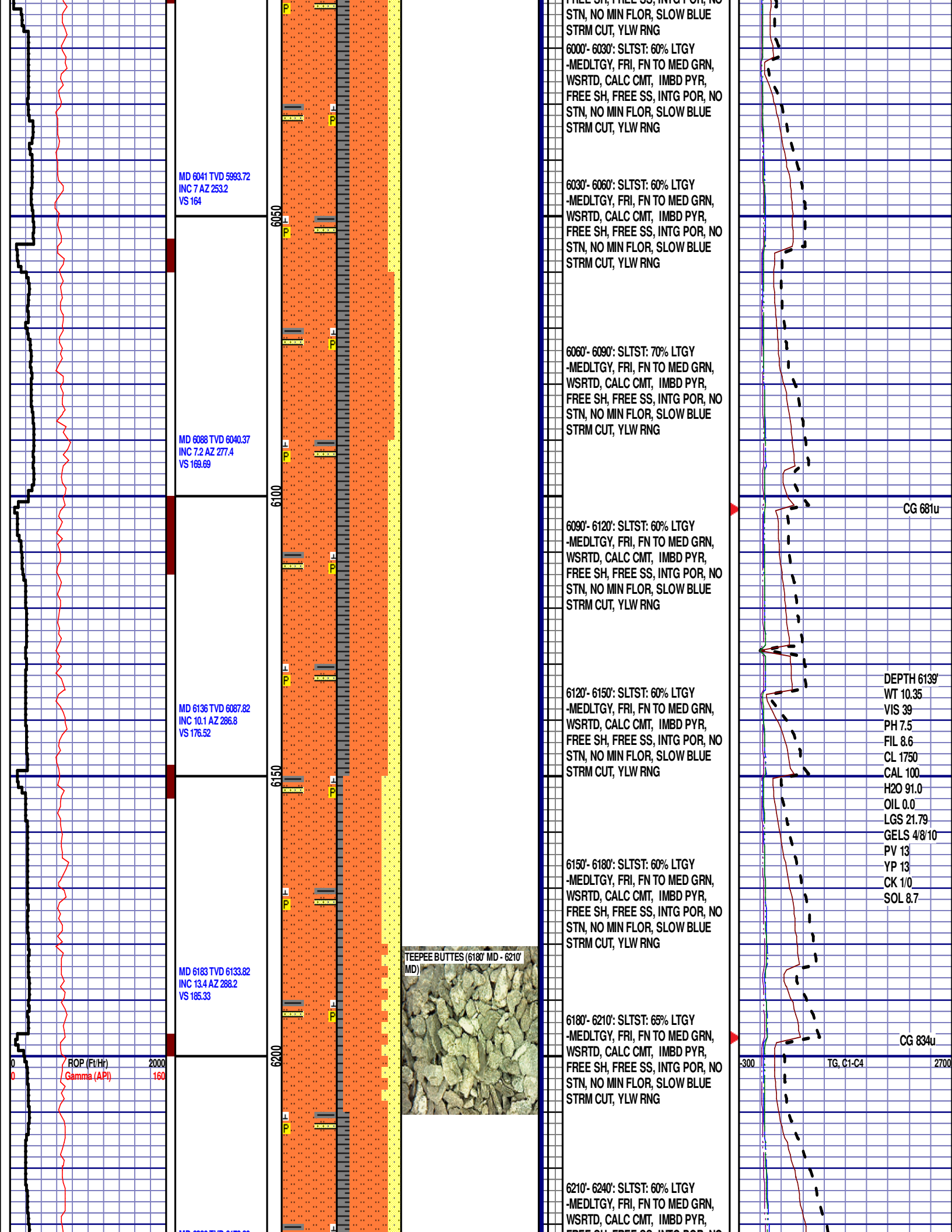
5700'- 5800': SLTST: 80% LTGY
-MEDLTGY, FRI, FN TO MED GRN,
WSRTD, CALC CMT, IMBD PYR, SH

300 TG, C1-C4 2700

CG 915u

CG 1091u



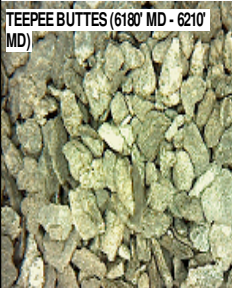


MD 6041 TVD 5993.72
INC 7 AZ 253.2
VS 164

MD 6088 TVD 6040.37
INC 7.2 AZ 277.4
VS 169.69

MD 6136 TVD 6087.82
INC 10.1 AZ 286.8
VS 176.52

MD 6183 TVD 6133.82
INC 13.4 AZ 288.2
VS 185.33

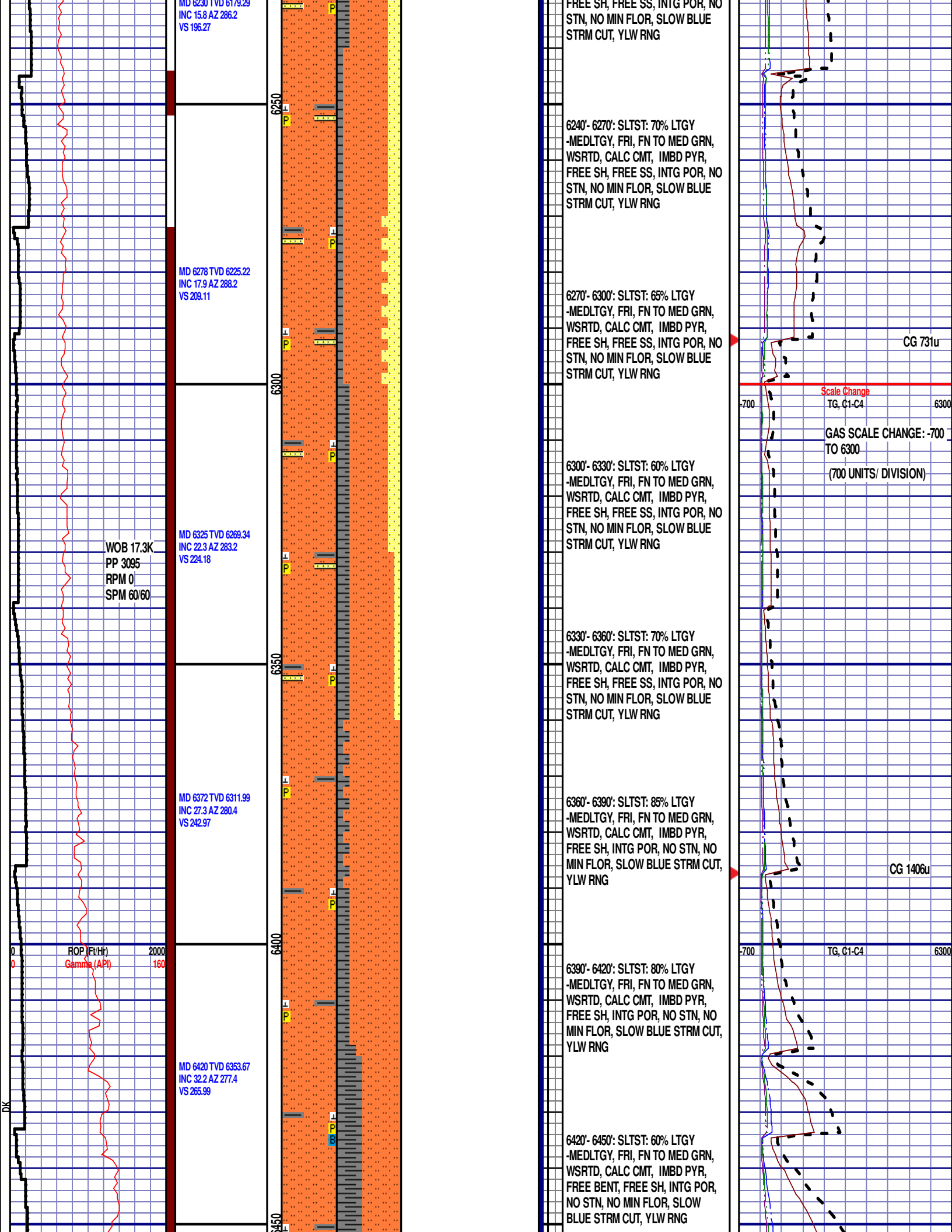


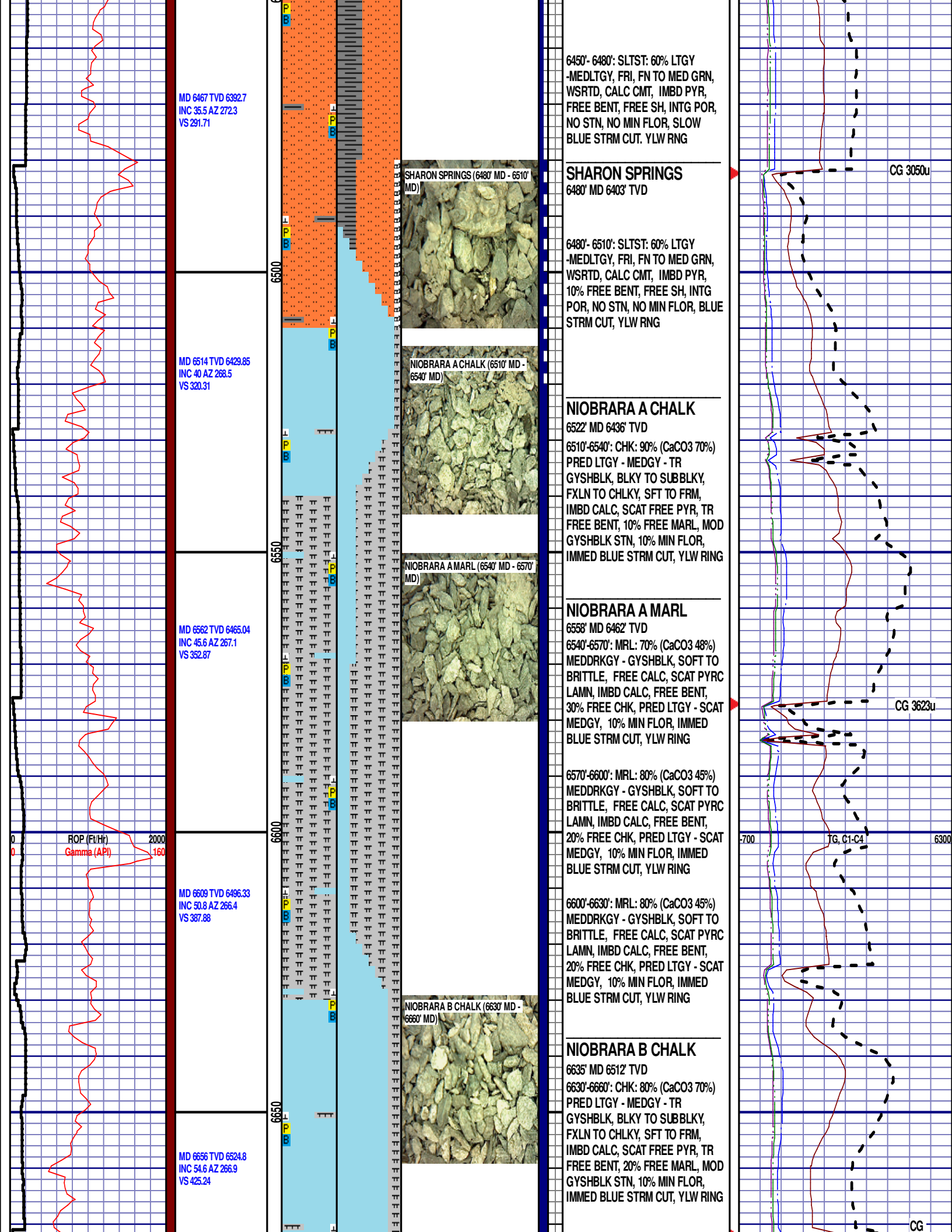
CG 681u

DEPTH 6139'
WT 10.35
VIS 39
PH 7.5
FIL 8.6
CL 1750
CAL 100
H2O 91.0
OIL 0.0
LGS 21.79
GELS 4/8/10
PV 13
YP 13
CK 1/0
SOL 8.7

CG 834u

300 TG, C1-C4 2700





WOB 43.5K
PP 3647
RPM 0
SPM 61/61

6700

50

P
B

G
P
B

6660'-6690': CHK: 80% (CaCO3 70%)
PRED LTGY - MEDGY - TR
GYSHBLK, BLKY TO SUBBLKY,
FXLN TO CHLKY, SFT TO FRM,
IMBD CALC, SCAT FREE PYR, TR
FREE BENT, 20% FREE MARL, MOD
GYSHBLK STN, 10% MIN FLOR,
IMMED BLUE STRM CUT, YLW RING

END OF VERTICAL LOG @ 6700' MD
ON 4/27/2014, CONTINUED ON
HORIZONTAL LOG.

3980u