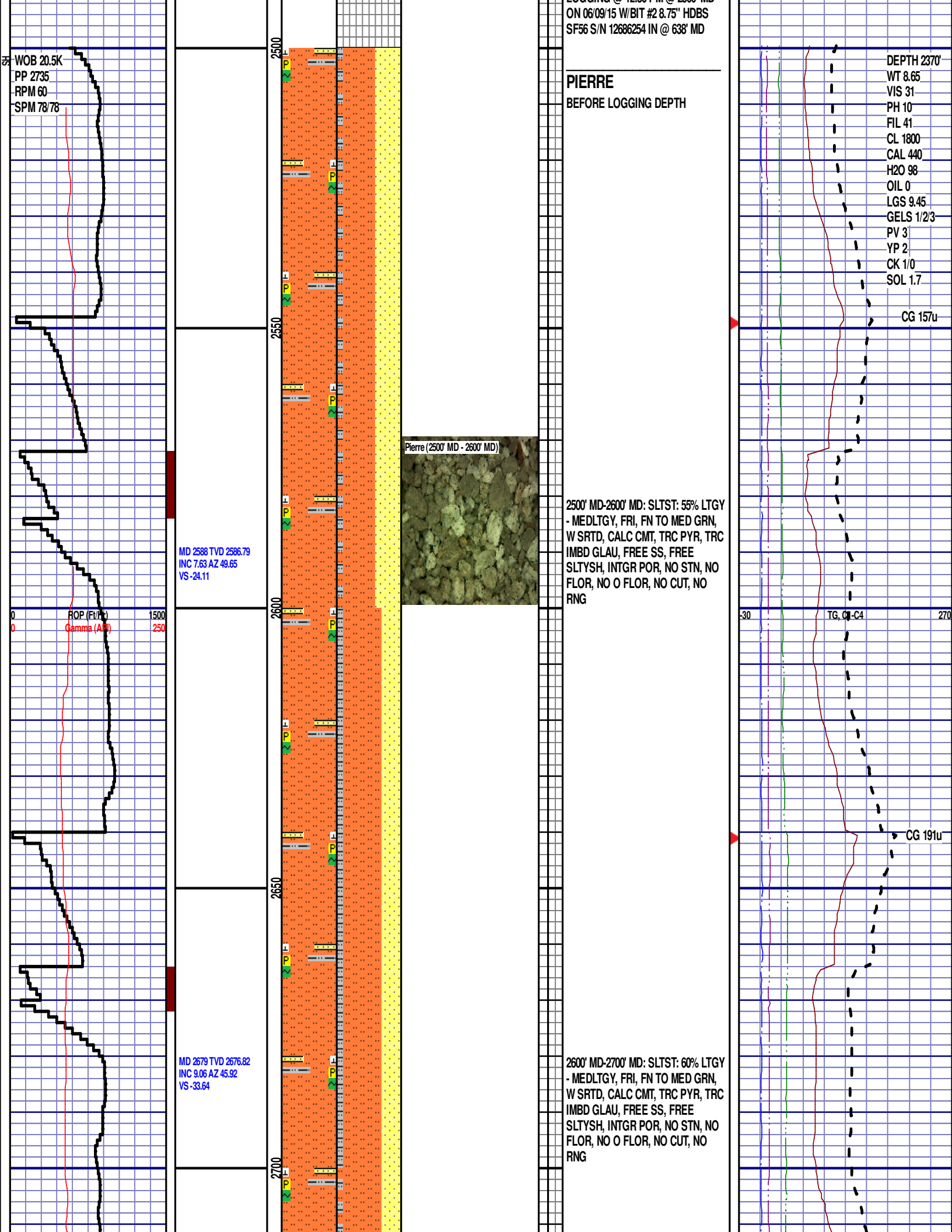
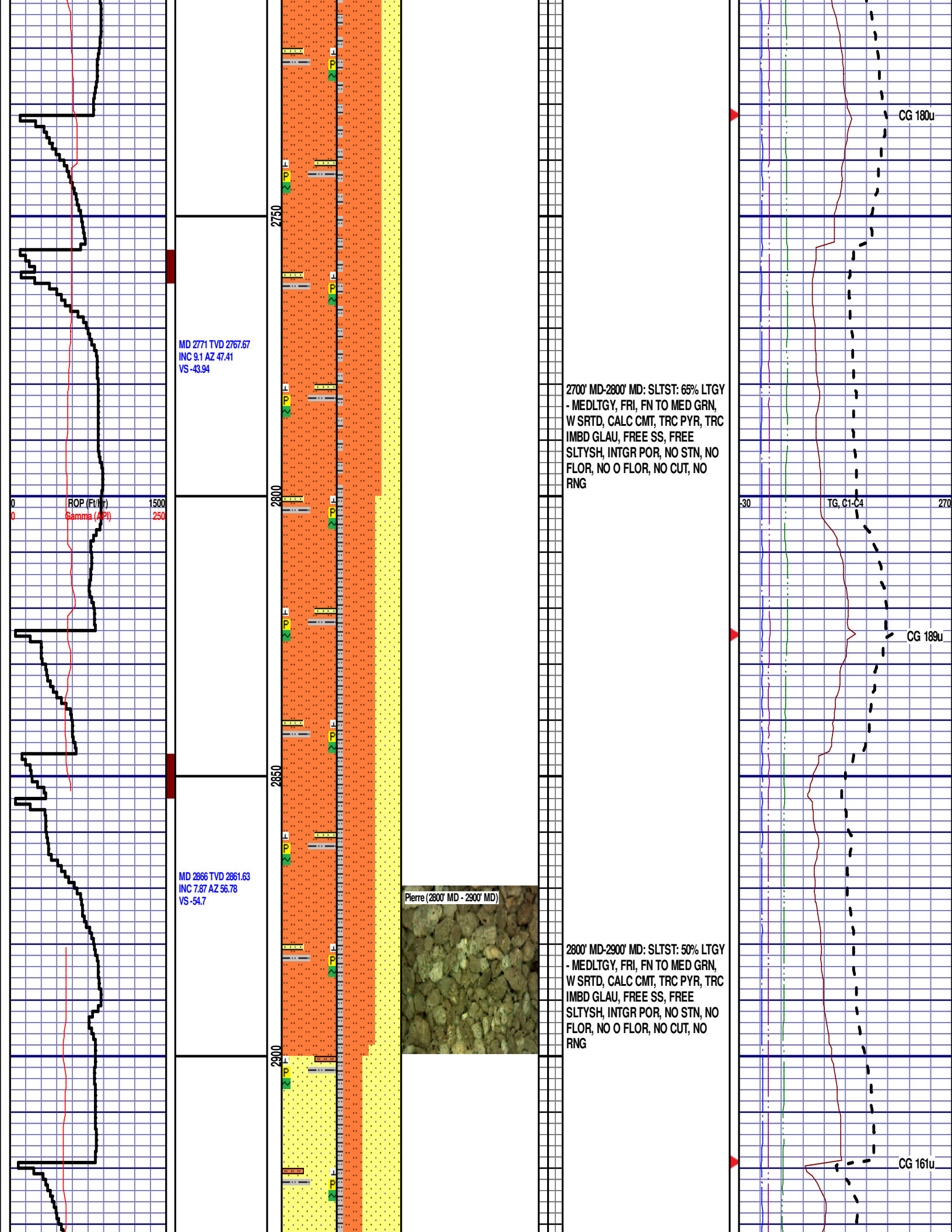


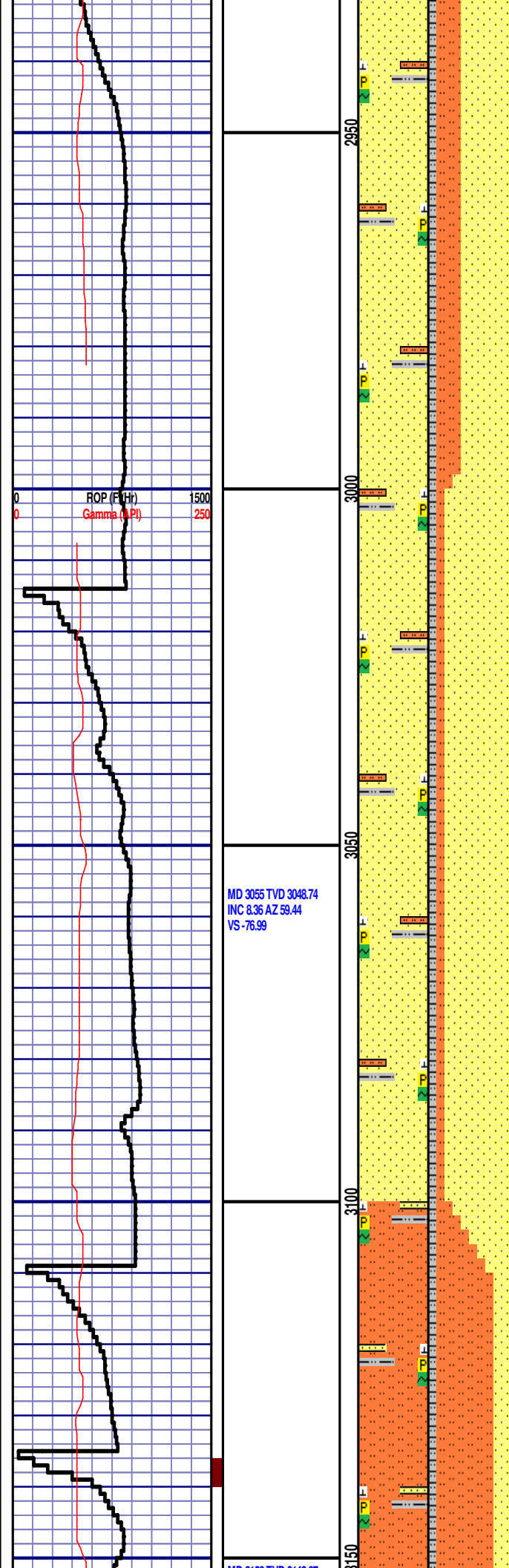
Logger On Shift		ROP (Ft/Hr) Gamma (API)		Drill Depth v. Time		Survey Data		Depth		Lithology		Lithology Percentages		Sample Photographs		Porositv		Geological Description		TG (1-8) C1 (units) C2 (units) C3 (units) C4 (units)		Total Gas, C1-C4	
0	1500	0	250					24															
SLIDE=RED ROTATE=WHITE				ROP SCALE: 0 TO 1500 (FT/HR)				GAMMA SCALE: 0 TO 250 (GAMMA DATA AS RECEIVED)				NOBLE ENERGY INC. WELLS RANCH AA11-682 10/11-T6N-R63W 687' FNL, 215' FEL WELD CO., CO H&P 321 LOGGERS: SCOTT HANEY ROBERT GULLIKSEN CALLED OUT BY COMPANY MAN @ 5:30 AM ON 06/09/15. COMMENCED LOGGING @ 12:30 PM @ 2500' MD				CONNECTIONS ARE MARKED WITH RED TRIANGLES GAS SCALE: -30u TO 270u (30 UNITS/DIVISION) DRILLING ON WATER-BASED MUD							

2500' MD @ 12:00 PM @ 2500' MD
ON 06/09/15 W/BIT #2 8.75" HDBS
SF56 S/N 12686254 IN @ 638' MD

WOB 20.5K
PP 2735
RPM 60
SPM 78/78

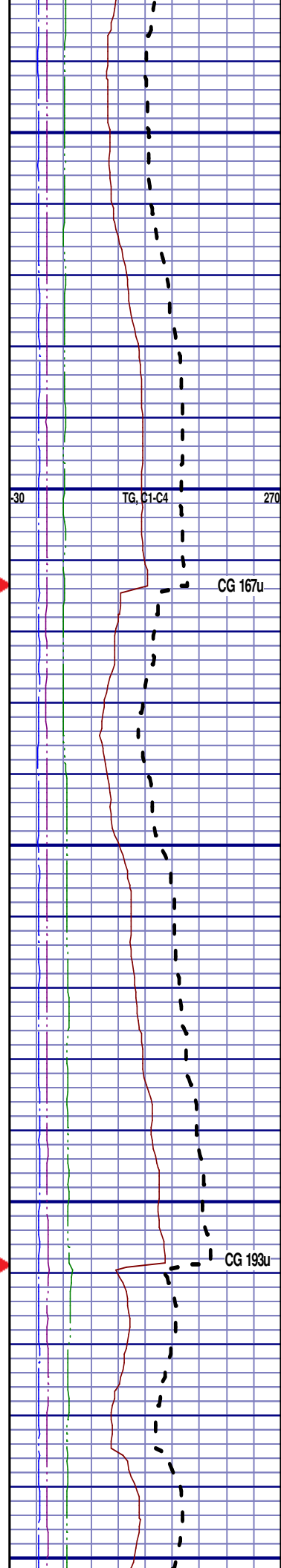






2900' MD-3000' MD: SS: 60% PRED
WHT - LTGY - OPQ, FRI, FN GRN, W
SRTD, CALC CMT, FREE SLTYSH,
FREE SLTST, IMBD PYR, IMBD
GLAUC, INTGR POR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

3000' MD-3100' MD: SS: 80% PRED
WHT - LTGY - OPQ, FRI, FN GRN, W
SRTD, CALC CMT, FREE SLTYSH,
FREE SLTST, IMBD PYR, IMBD
GLAUC, INTGR POR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG



MD 3150 TVD 3142.67
INC 8.84 AZ 60.46
VS -89.11

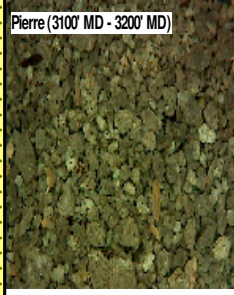
ROP (ft/Hr)
Gamma (API)

1500
250

MD 3245 TVD 3236.7
INC 7.52 AZ 63.23
VS -100.84

MD 3340 TVD 3330.87
INC 7.67 AZ 59.28
VS -111.69

Pierre (3100' MD - 3200' MD)

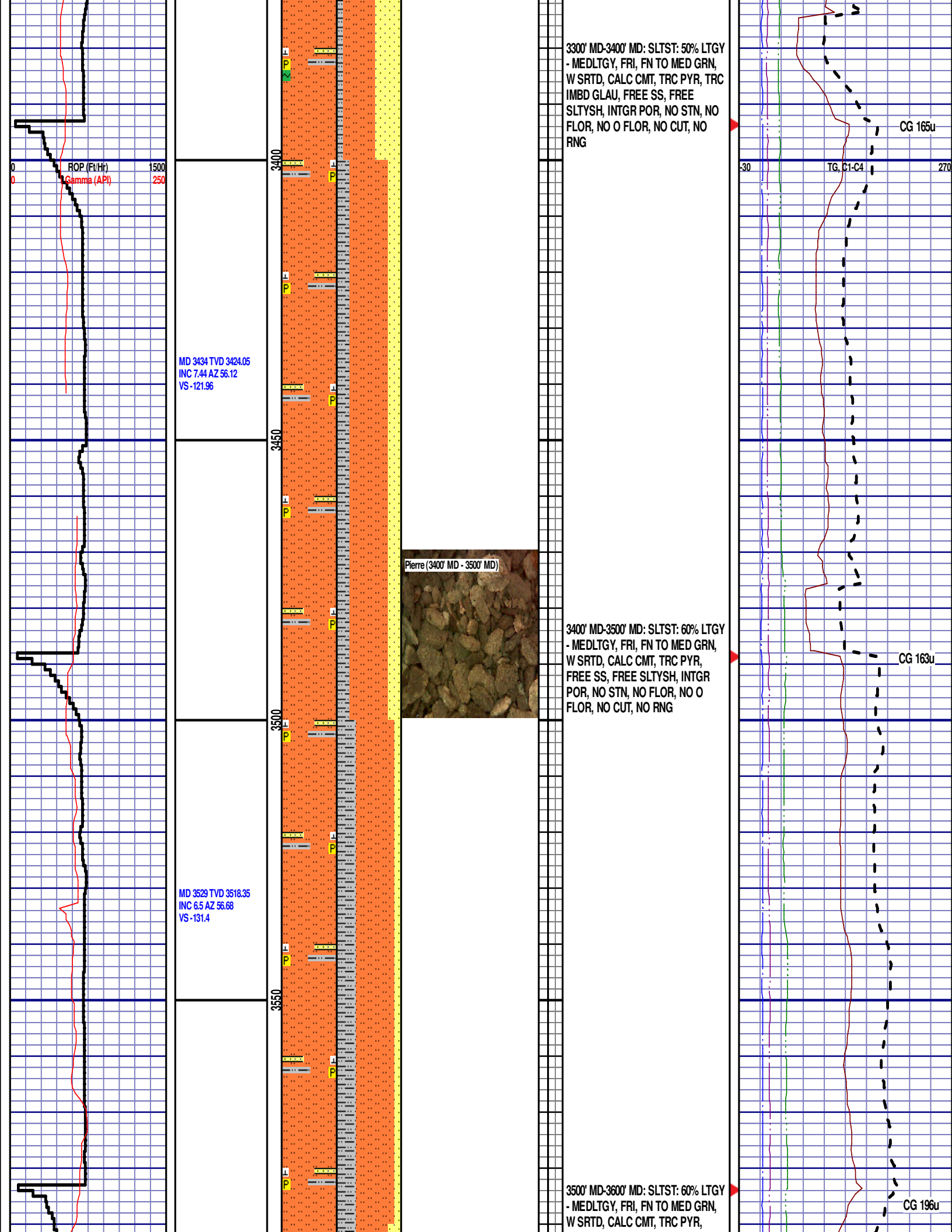


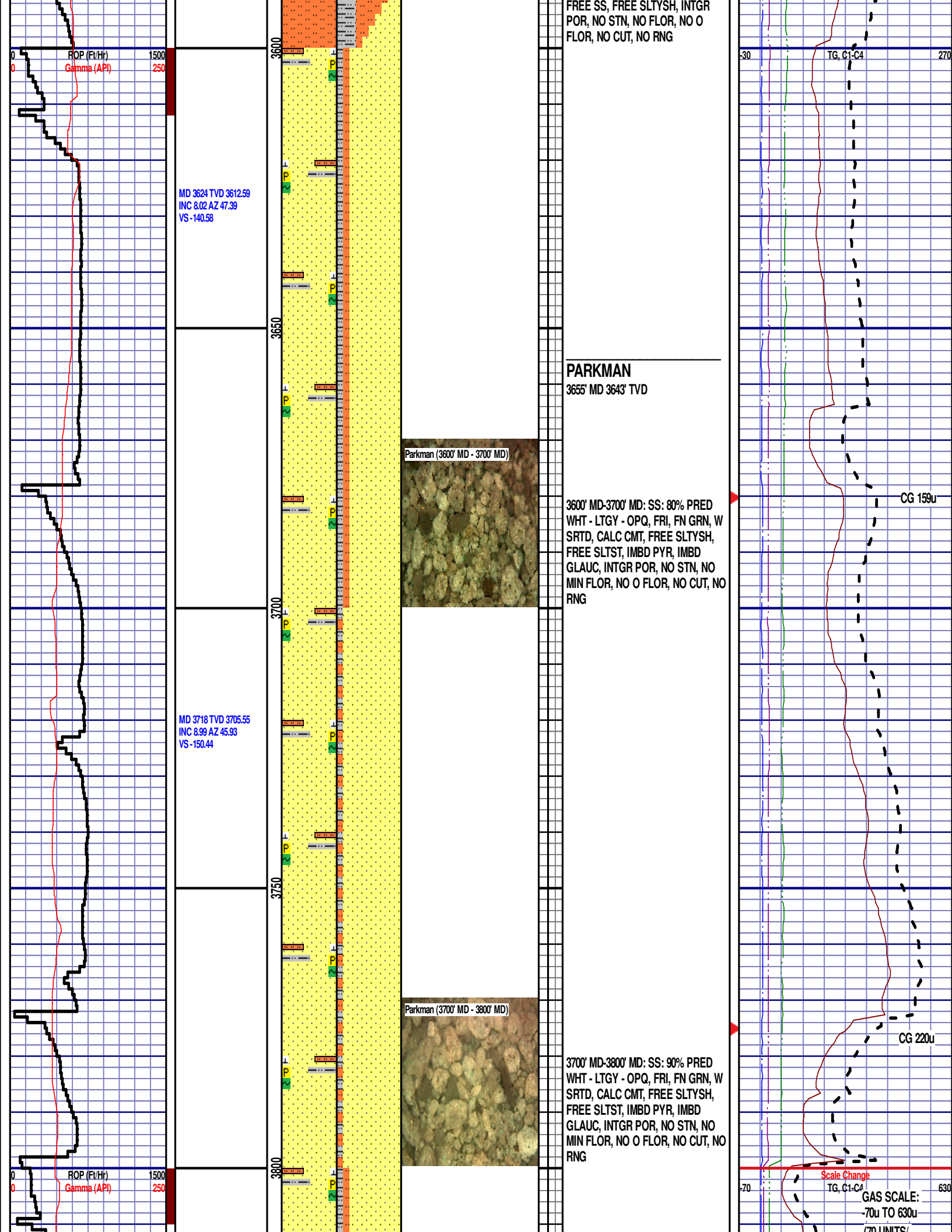
3100' MD-3200' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAU, FREE SS, FREE
SLTYSH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

3200' MD-3300' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAU, FREE SS, FREE
SLTYSH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

30 TG C1-C4 270
CG 158u

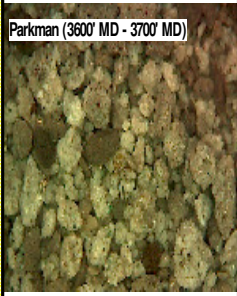
CG 168u



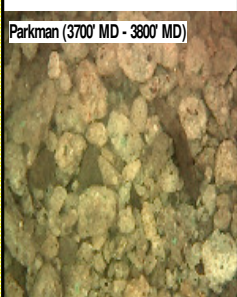


FREE SS, FREE SLTYSH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

PARKMAN
3655' MD 3643' TVD



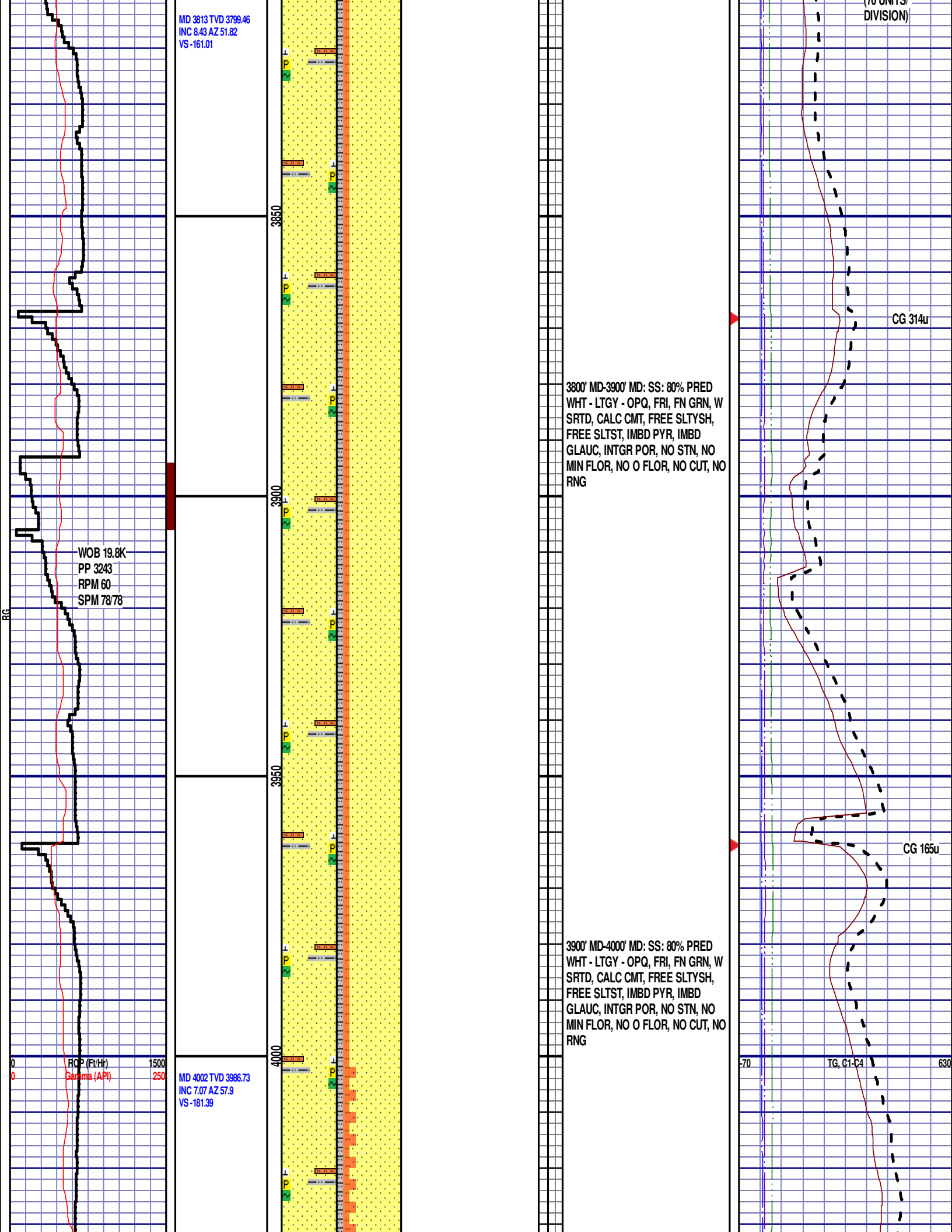
3600' MD-3700' MD: SS: 80% PRED
WHT - LTGY - OPQ, FRI, FN GRN, W
SRTD, CALC CMT, FREE SLTYSH,
FREE SLTST, IMBD PYR, IMBD
GLAUC, INTGR POR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

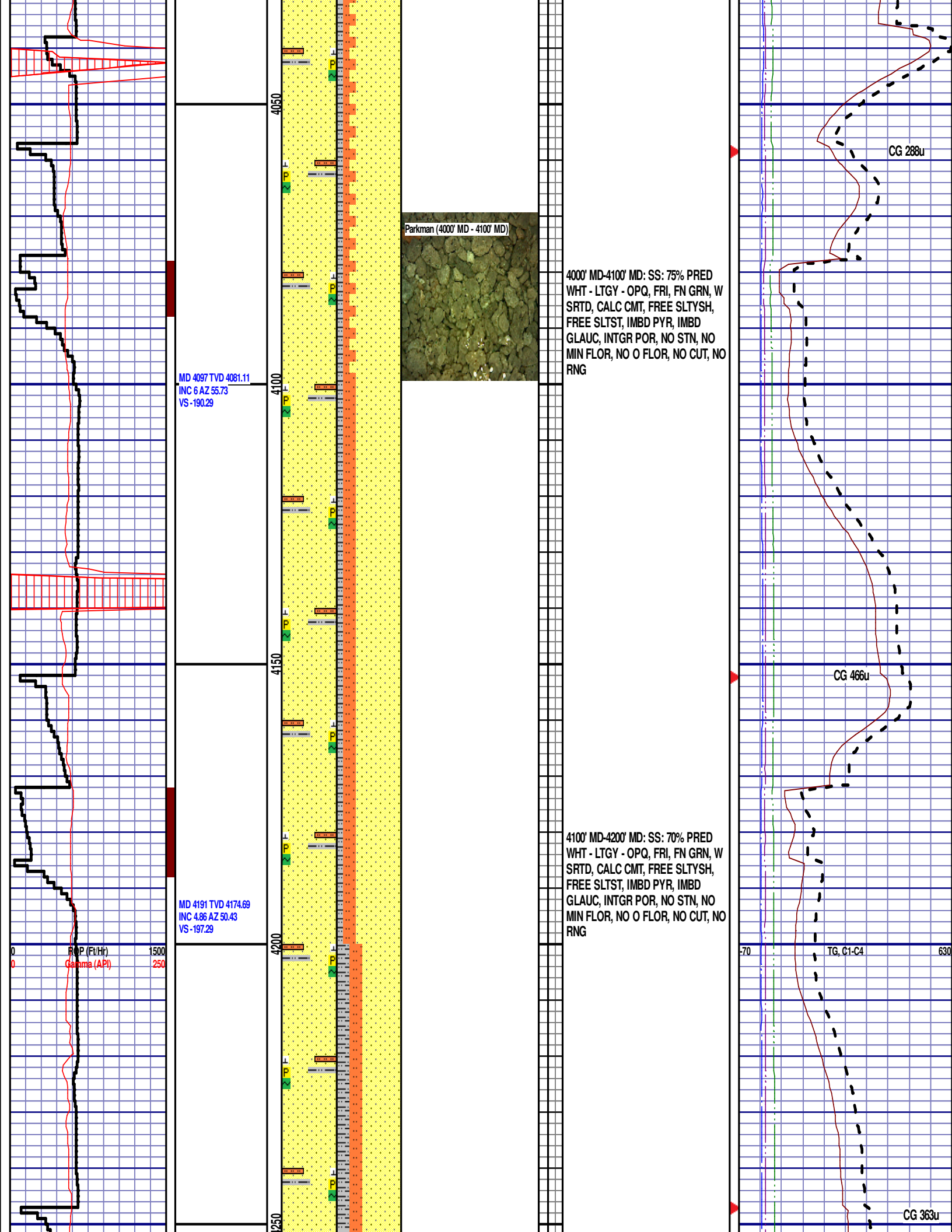


3700' MD-3800' MD: SS: 90% PRED
WHT - LTGY - OPQ, FRI, FN GRN, W
SRTD, CALC CMT, FREE SLTYSH,
FREE SLTST, IMBD PYR, IMBD
GLAUC, INTGR POR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

Scale Change
TG, C1-C4

GAS SCALE:
-70u TO 630u
/70 UNITS/

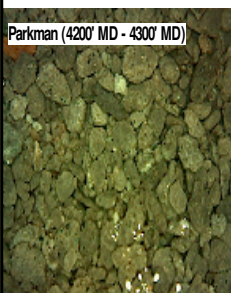




MD 4286 TVD 4269.5
INC 2.22 AZ 51.35
VS -201.73

MD 4381 TVD 4364.47
INC 0.88 AZ 118.15
VS -203.79

Parkman (4200' MD - 4300' MD)



4200' MD-4300' MD: SS: 60% PRED
WHT - LTGY - OPQ, FRI, FN GRN, W
SRTD, CALC CMT, FREE SLTYSH,
FREE SLTST, IMBD PYR, IMBD
GLAUC, INTGR POR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

SUSSEX
4302' MD 4285' TVD

Sussex (4300' MD - 4400' MD)



4300' MD-4400' MD: SS: 50% PRED
WHT - LTGY - OPQ, FRI, FN GRN, W
SRTD, CALC CMT, FREE SLTYSH,
FREE SLTST, IMBD PYR, IMBD
GLAUC, INTGR POR, NO STN, NO
MIN FLOR, NO O FLOR, NO CUT, NO
RNG

CG 119u

70 TG, C1-C4 630

CG 170u

MD 4476 TVD 4459.46
INC 0.98 AZ 133.52
VS -205.05

MD 4570 TVD 4553.45
INC 0.66 AZ 123.85
VS -206.1

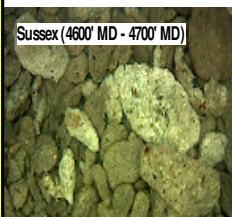
MD 4665 TVD 4648.44
INC 0.92 AZ 118.03
VS -207.25

4400' MD-4500' MD: SLTST: 50% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAUC, FREE SS, FREE
SLTYSH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

4500' MD-4600' MD: SLTST: 45% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAUC, FREE SS, FREE
SLTYSH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

4600' MD-4700' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAUC, FREE SS, FREE
SLTYSH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

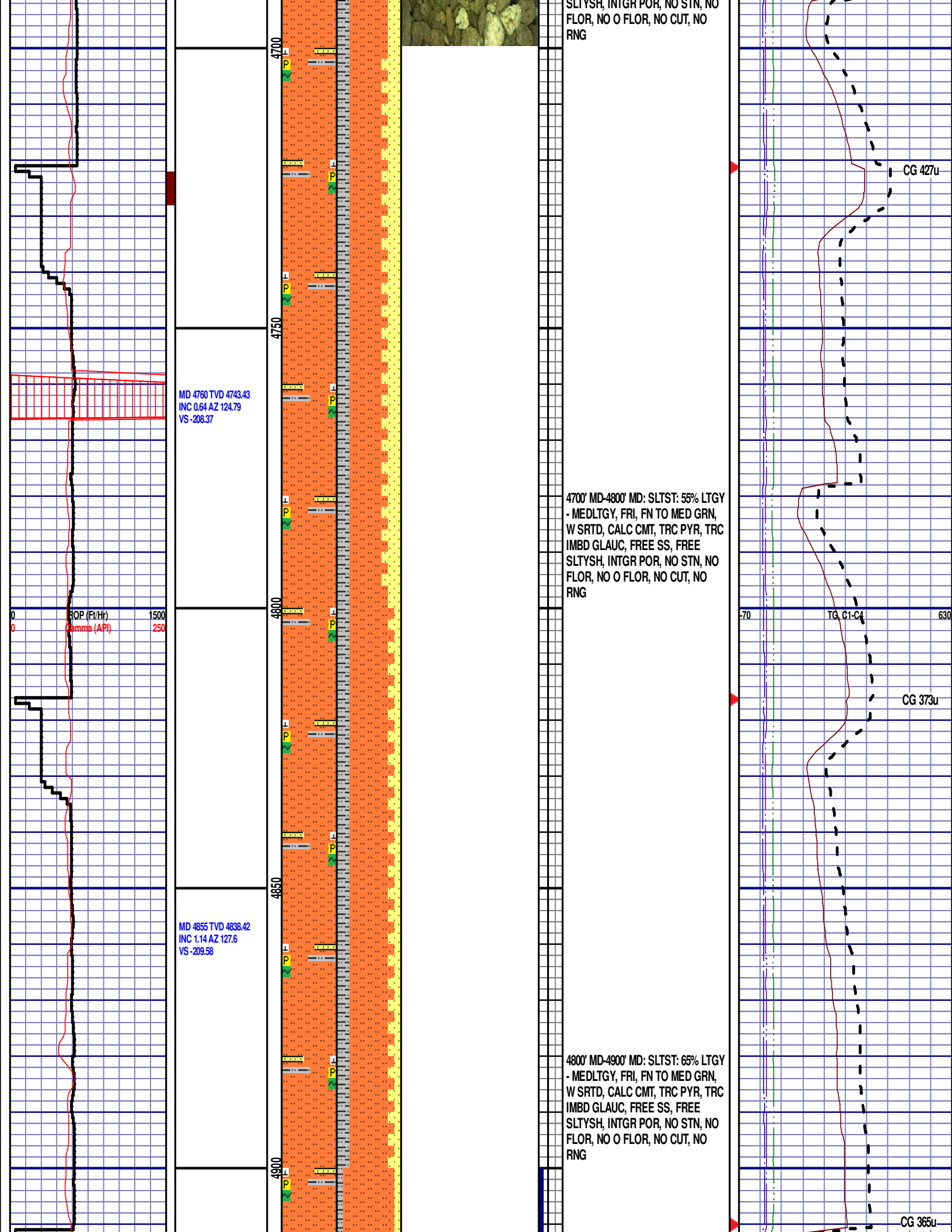
Sussex (4600' MD - 4700' MD)

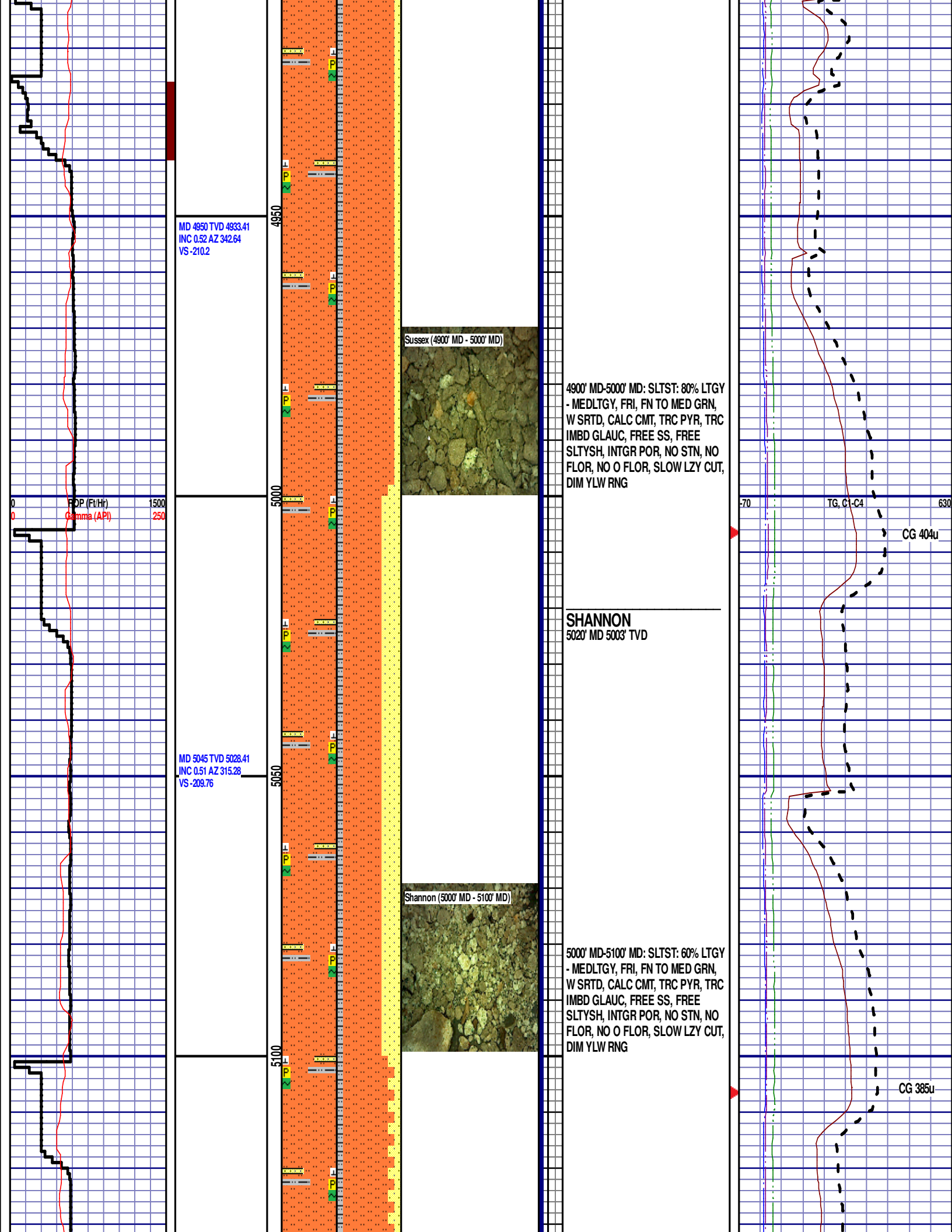


CG 351u

TG C1-C4

CG 414u





MD 5139 TVD 5122.41
INC 0.52 AZ 296.92
VS-209.07

ROP (Ft/Hr) 1500
Gamma (API) 250

5150

5200

5250

5300

5350

5100' MD-5200' MD: SLTST: 75% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAUC, FREE SS, FREE
SLTYSH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, SLOW LZ CUT,
DIM YLW RNG

CG 353u

70

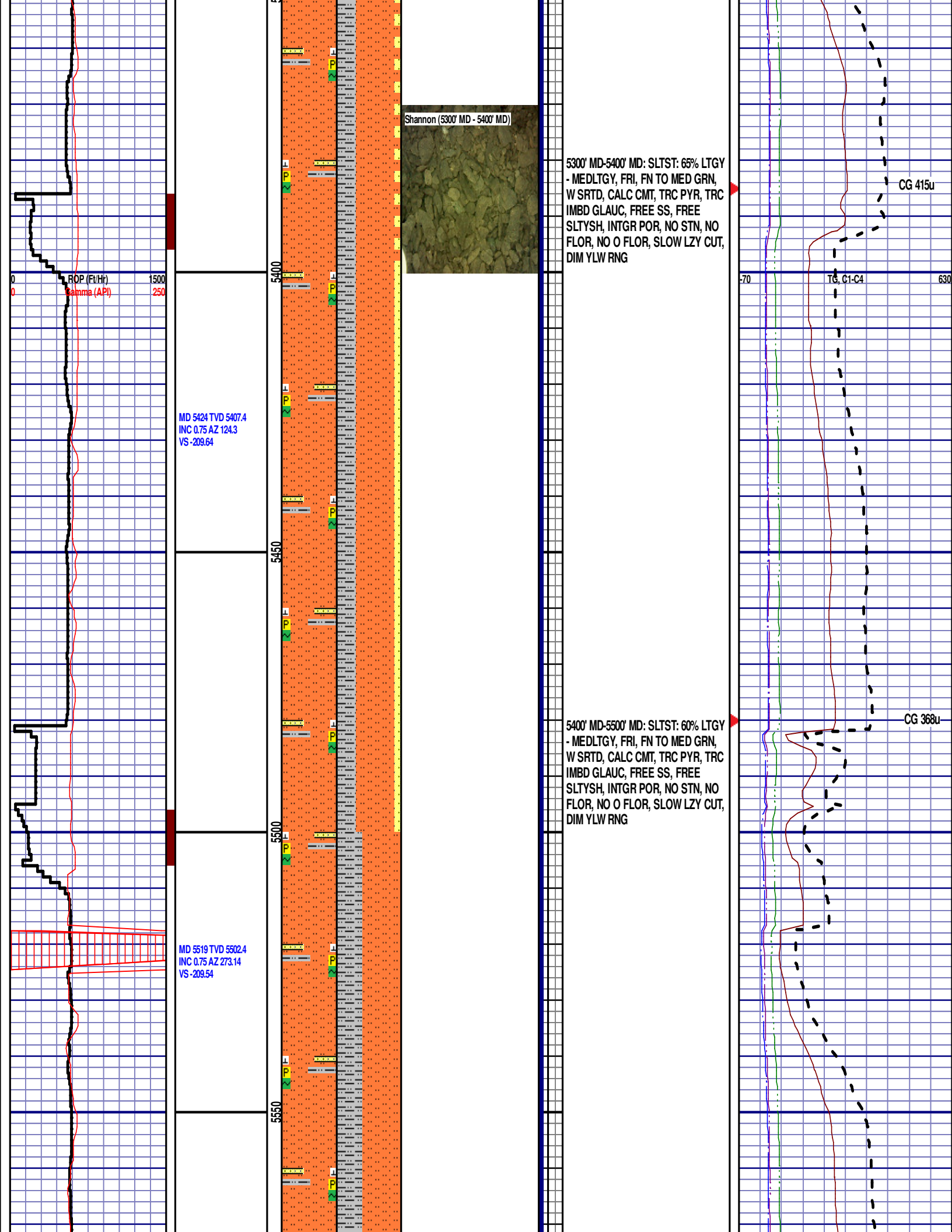
TG C1-C2

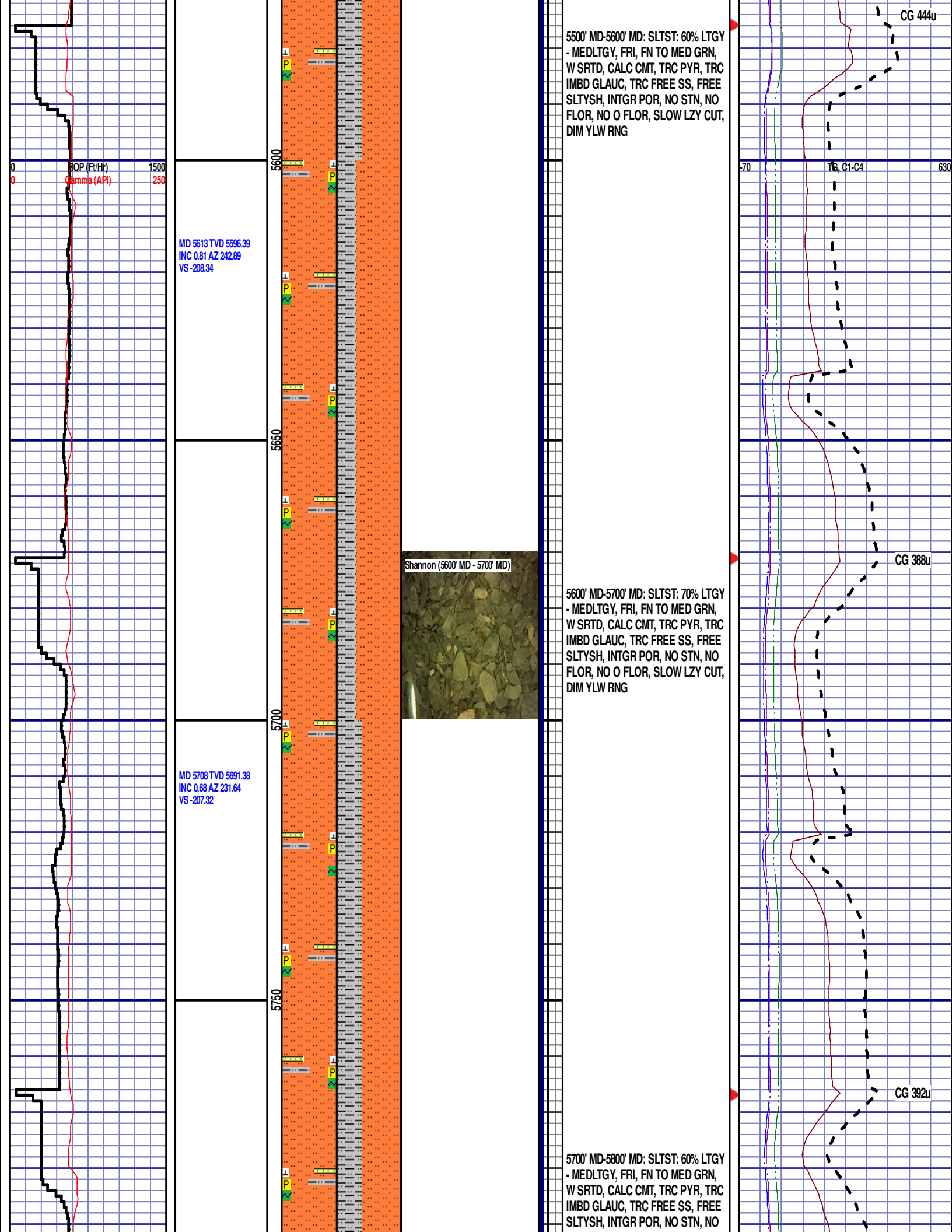
630

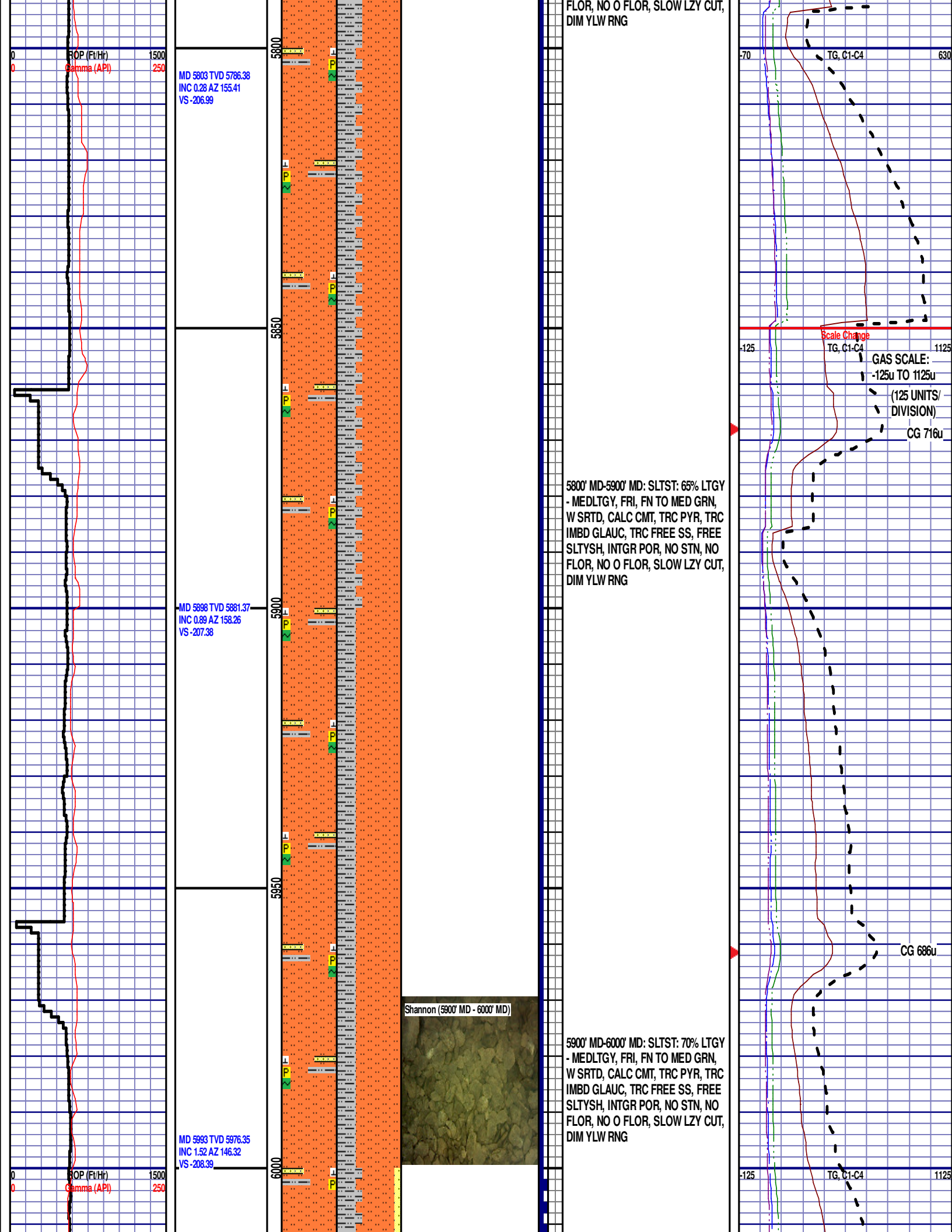
5200' MD-5300' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAUC, FREE SS, FREE
SLTYSH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, SLOW LZ CUT,
DIM YLW RNG

CG 430u

MD 5329 TVD 5312.4
INC 0.46 AZ 135.28
VS-208.84







TEEPEE BUTTES

6020' MD 6003' TVD

CG 726u

Teepee Buttes (6000' MD - 6100' MD)

6000' MD-6100' MD: SLTST: 55% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
FREE SS, FREE SLTYSH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

SWITCHING TO 30FT SAMPLE
INTERVAL

6100' MD-6130' MD: SLTST: 50% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

6130' MD-6160' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

CG 274u

6160' MD-6190' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

6190' MD-6220' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

-125

TG, C1-C4

1125

6220' MD-6250' MD: SLTST: 70% LTGY

MD 6087 TVD 6070.31
INC 1.89 AZ 145.29
VS -210.03

MD 6134 TVD 6117.29
INC 1.42 AZ 182.49
VS -210.47

12:01 AM
06/10/2015
DAY 02
3641 FT/24HRS

WOB 6.0K
PP 3326
RPM 0
SPM 78/78

MD 6182 TVD 6165.22
INC 4.9 AZ 263.21
VS -208.43

Scale Change
ROP (Ft/Hr) 600
ROP (Ft/Hr) 250
ROP SCALE
CHANGE: 0 TO 600

MD 6229 TVD 6211.86

INC 9.21 AZ 273.9
VS -202.68

MD 6276 TVD 6257.96
INC 13.13 AZ 271.22
VS -193.58

MD 6323 TVD 6303.24
INC 17.9 AZ 266.97
VS -181.04

MD 6371 TVD 6348.14
INC 23.37 AZ 266.26
VS -164.19

MD 6418 TVD 6390.96
INC 25.3 AZ 265.1
VS -144.92

ROP (Ft/Hr)
Gamma (API)

6250

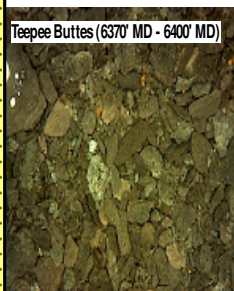
6300

6350

6400

6450

Teepee Buttes (6370' MD - 6400' MD)



- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, TRC FREE SLTYSH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

6250' MD-6280' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, TRC FREE SLTYSH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

6280' MD-6310' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

6310' MD-6340' MD: SLTST: 75% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

6340' MD-6370' MD: SLTST: 65% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

6370' MD-6400' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

6400' MD-6430' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

6430' MD-6460' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,

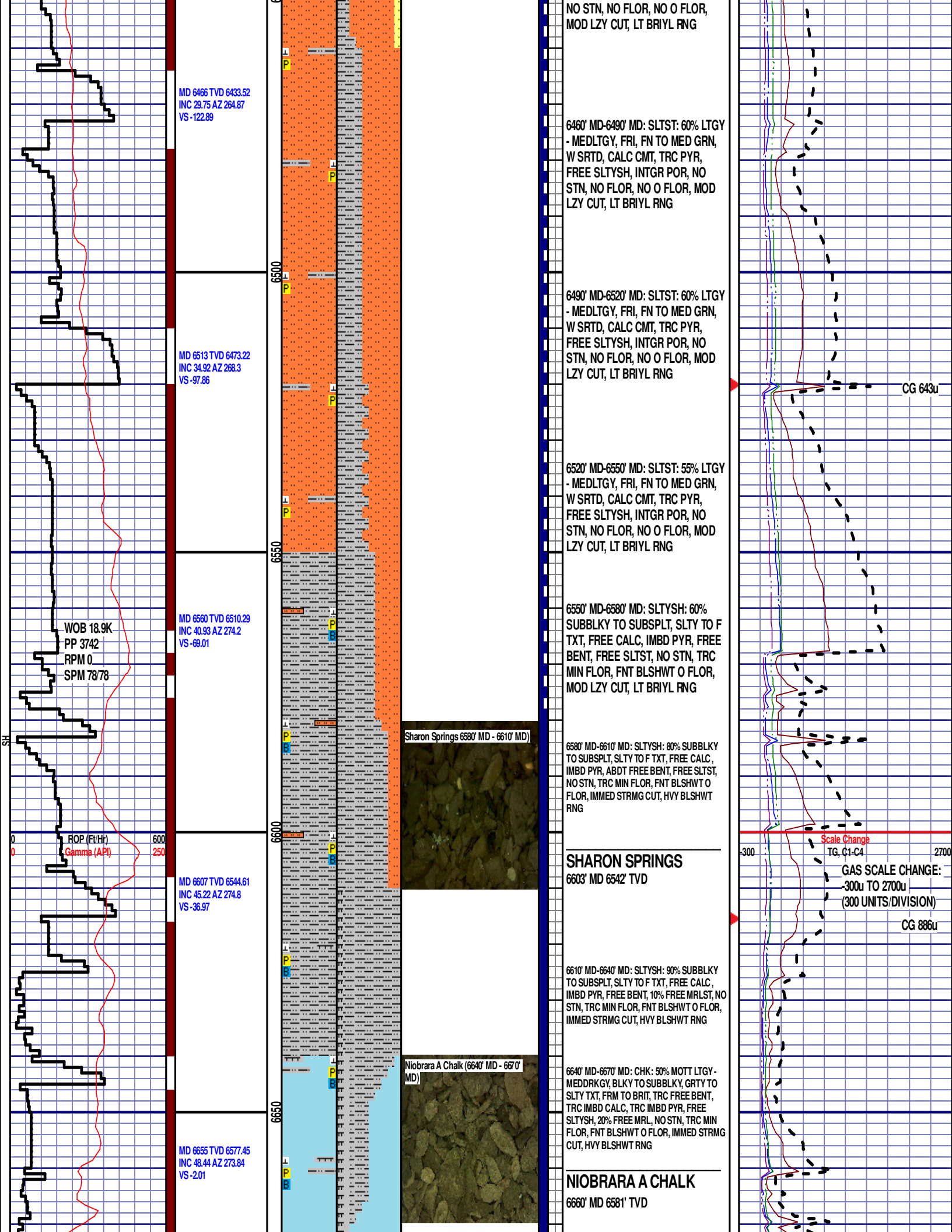
CG 217u

CG 181u

-125 TG, C1-C4

1125

CG 420u



WOB 43.6K
PP 2111
RPM 0
SPM 115/0

MD 6702 TVD 6607.8
INC 51.09 AZ 274.31
VS 33.83

WOB 8.1K
PP 2208
RPM 0
SPM 115/0

MD 6750 TVD 6637.14
INC 53.56 AZ 273.47
VS 71.78

ROP (Ft/Hr)
Gamma (API)

WOB 19.1K
PP 2463
RPM 0
SPM 115/0

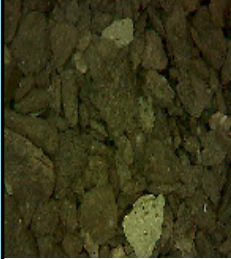
6700

6750

6800

6850

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



6670' MD-6700' MD: CHK: 80% MOTT LTGY - MEDDRKGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE BENT, TRC IMBD CALC, TRC IMBD PYR, 20% FREE MRL, NO STN, TRC MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

NIOBRARA A MARL

6703' MD 6608' TVD

6700' MD-6730' MD: MRST: 85% MEDDRKGY - MEDLTGY, B LKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, FREE CALC, TRC FREE BENT, IMBD PYR, 15% FREE CHK, NO STN, TRC MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

6730' MD-6760' MD: MRST: 70% MEDDRKGY - MEDLTGY, B LKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, IMBD PYR, 30% FREE CHK, NO STN, TRC MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

6760' MD-6790' MD: MRST: 80% MEDDRKGY - MEDLTGY, B LKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, IMBD PYR, 20% FREE CHK, NO STN, TRC MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

6790' MD-6820' MD: MRST: 55% MEDDRKGY - MEDLTGY, B LKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, TRC FREE CALC, TRC FREE BENT, IMBD PYR, 45% FREE CHK, NO STN, TRC MIN FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

END OF VERTICAL LOG @ 6820' MD
ON 06/10/2015, CONTINUED ON
HORIZONTAL LOG

CG 2060u

DEPTH 6776'

WT 10.50

VIS 36

PH 9.0

FIL 8.0

CL 1700

CAL 100

H2O 89.0

OIL 0.5

LGS 34.91

GELS 4/25/32

PV 9

YP 9

CK 1/0

SOL 10.2

TG, C1-C4

CG 1210u