

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		
0	ROP (Ft/Hr)	1500		24					NOBLE ENERGY NCLP AA06-69-1HNA 4-T6N-R63W 698' FNL, 100' FWL WELD COUNTY, CO H&P 321 LOGGERS: HANNAH BLATCHFORD JOE KLUMPSTRA CALLED OUT BY COMPANY MAN @ 3:00 PM ON 06/27/14. COMMENCED LOGGING @ 2:00 AM @ 2500' MD ON	-30	TG, C1-C4	270
0	Gamma (API)	350								CONNECTIONS ARE MARKED WITH RED TRIANGLES		
SLIDE=RED ROTATE=WHITE										GAS SCALE: -30 TO 270 30 UNITS/DIVISION		
ROP SCALE: 0 TO 1500 (FT/HR)										DRILLING ON WATER-BASED MUD		
GAMMA SCALE: 0 TO 350 (GAMMA DATA AS RECEIVED)												

PIERRE
BEFORE LOGGING DEPTH

MD 889'
WT 9.2
VIS 32
PH 8.5
FIL 11.2
CL 1800
CAL 100
H2O 94.6
OIL 0.0
SOL 5.1
CAKE 1/0
GELS 1/4/10
PV 4.0
YP 3.0

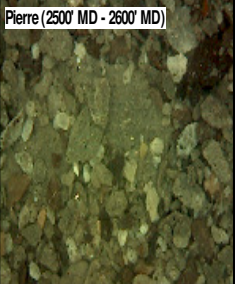
CG 62u

TG, C1-C4

CG 64u

2500'- 2600': SLTST: 70% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, OCC
IMBD PYR, IMBD SS LAMN, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

2600'- 2700': SLTST: 75% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, OCC
IMBD PYR, IMBD SS LAMN, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

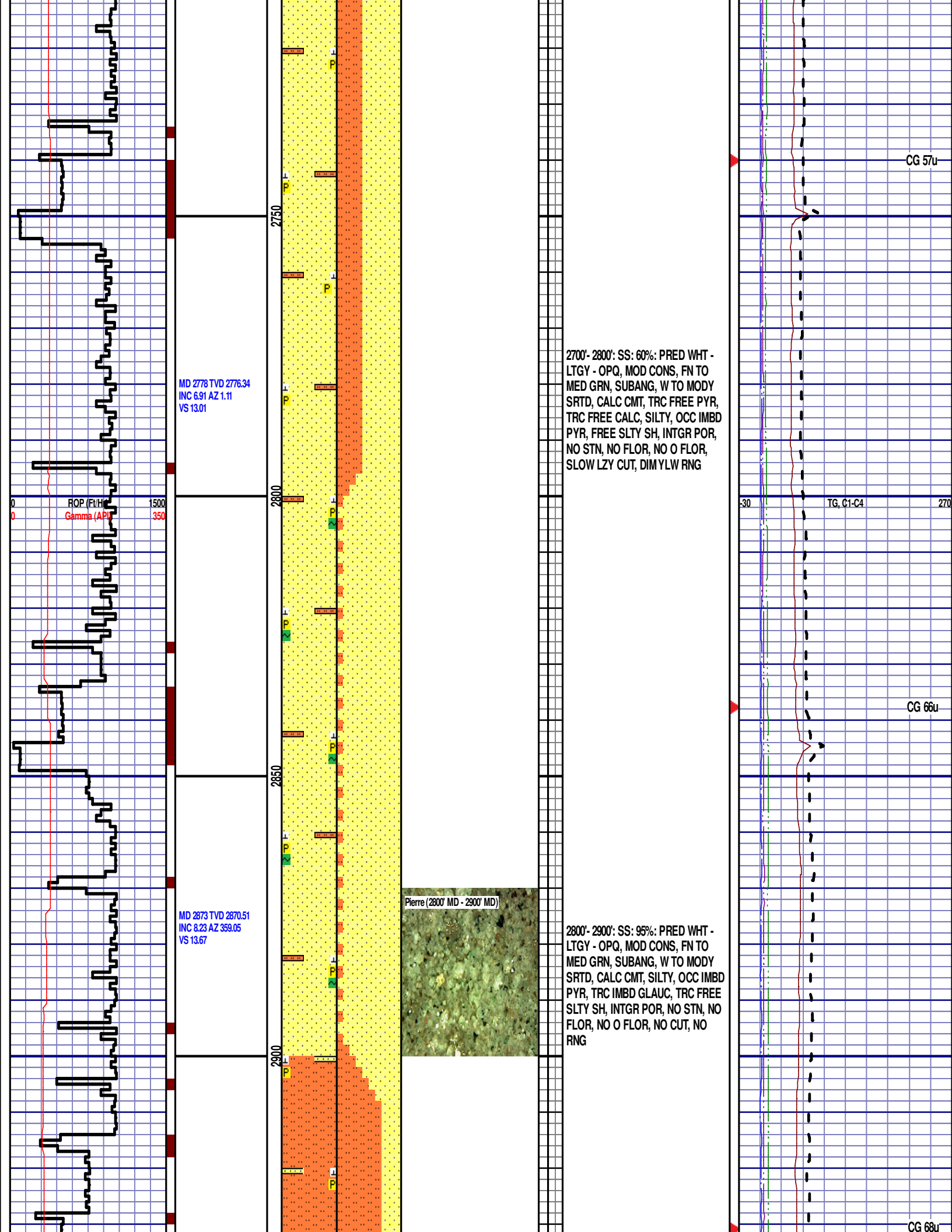


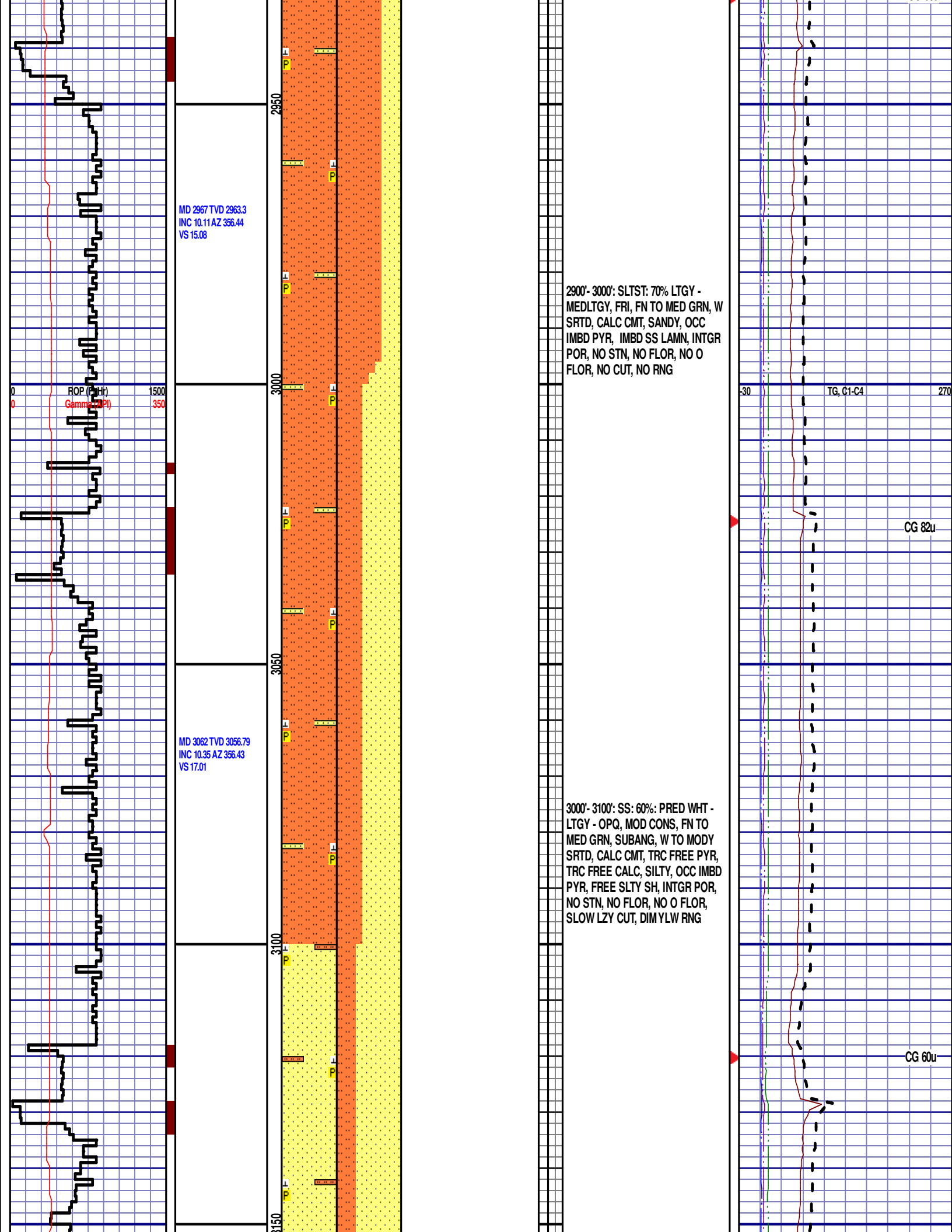
12:01 AM
06/28/2014
0 FT/24HRS
DAY 02
WOB 18.1K
PP 2835
RPM 81
SPM 67/67

MD 2588 TVD 2587.34
INC 5.54 AZ 359.5
VS 11.82

ROP (Ft/hr)
Gamma (API)

MD 2683 TVD 2681.9
INC 5.48 AZ 358.46
VS 12.46





MD 2967 TVD 2963.3
INC 10.11 AZ 356.44
VS 15.08

ROP (ft/hr)
Gamma (API)

MD 3062 TVD 3056.79
INC 10.35 AZ 356.43
VS 17.01

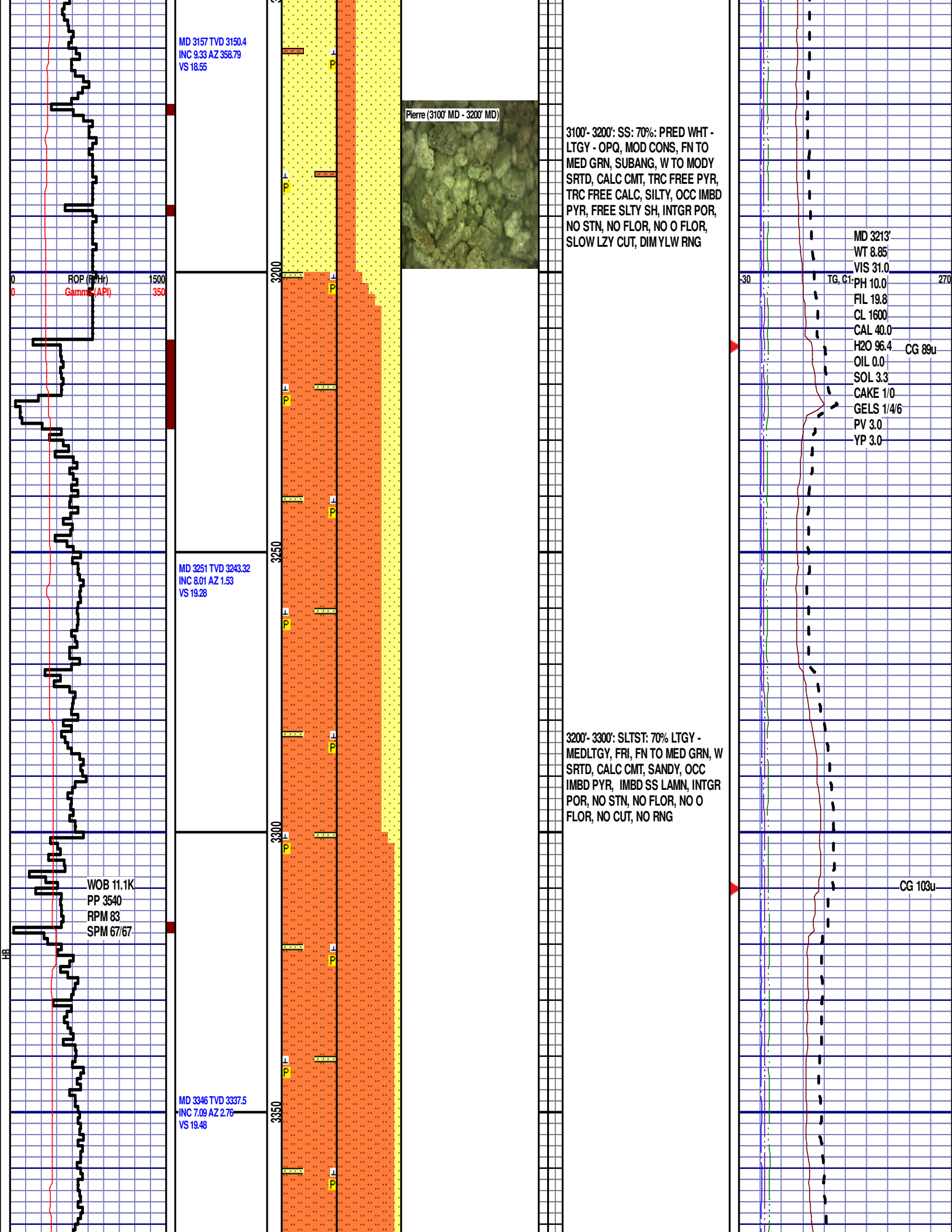
2900'- 3000': SLTST: 70% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, OCC
IMBD PYR, IMBD SS LAMN, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

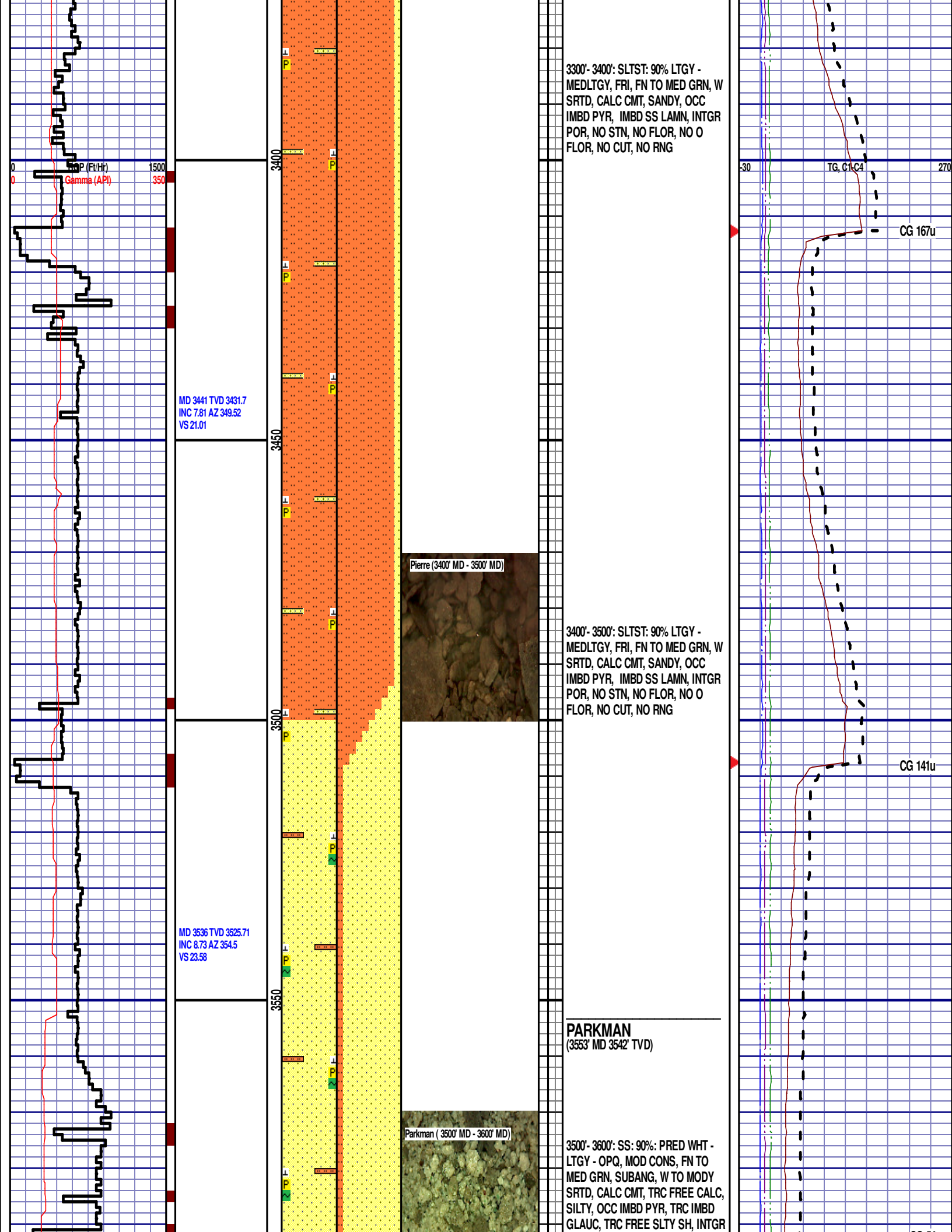
3000'- 3100': SS: 60%: PRED WHT -
LTGY - OPQ, MOD CONS, FN TO
MED GRN, SUBANG, W TO MODY
SRTD, CALC CMT, TRC FREE PYR,
TRC FREE CALC, SILTY, OCC IMBD
PYR, FREE SLTY SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
SLOW LZY CUT, DIM YLW RNG

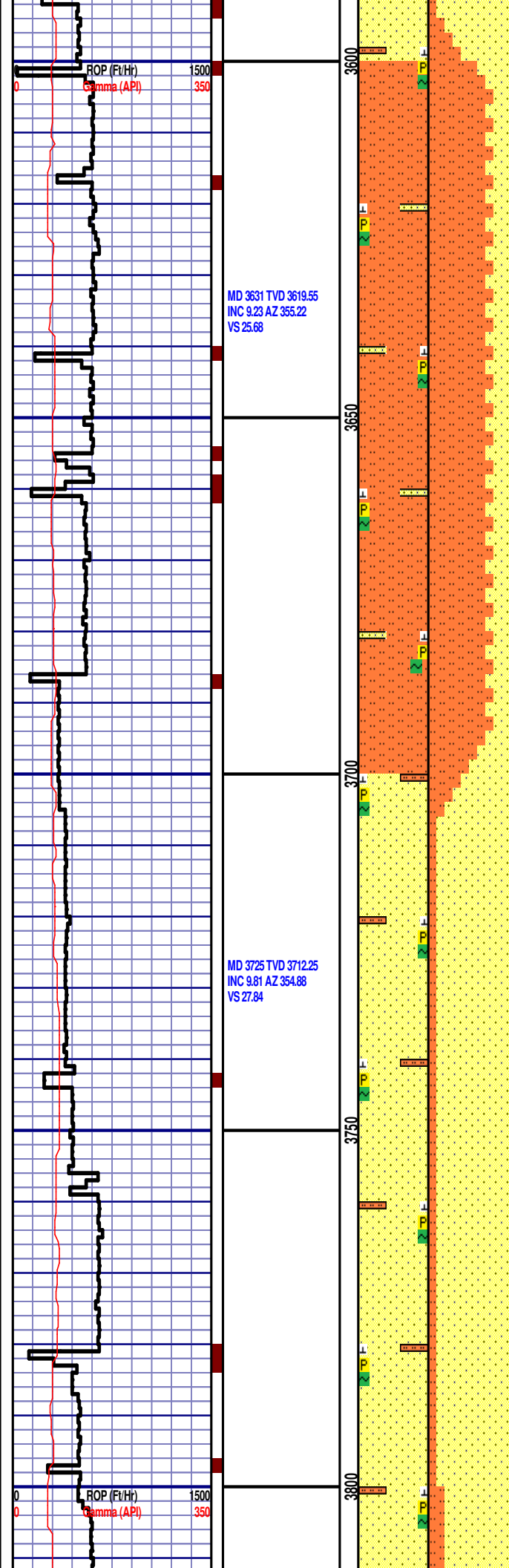
TG, C1-C4

CG 82u

CG 60u

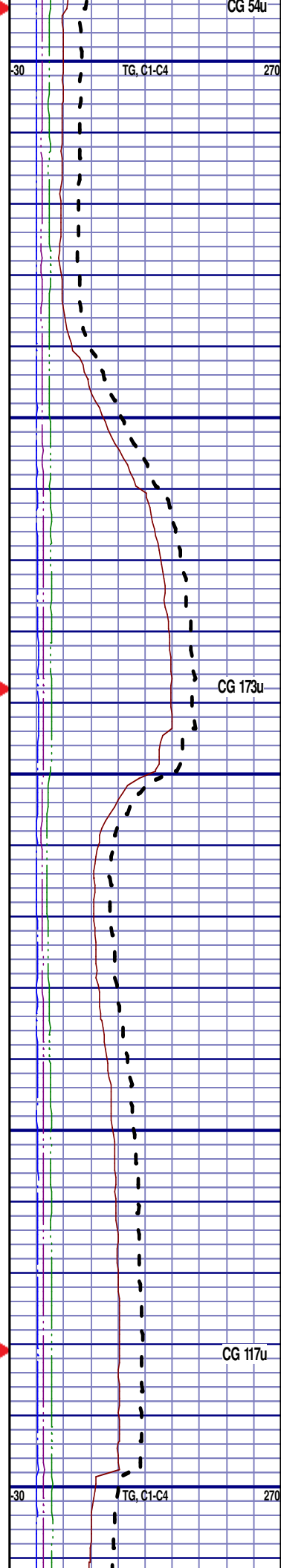






POR, NO STN, NO FLOR, NO C
FLOR, NO CUT, DIM YLW RNG

CG 54u



3600'- 3700': SLTST: 75% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, OCC
IMBD PYR, IMBD GLAUC, IMBD SS
LAMN, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

3700' - 3800': SS: 90%: PRED WHT -
LTGY - OPQ, MOD CONS, FN TO
MED GRN, SUBANG, W TO MODY
SRTD, CALC CMT, TRC FREE CALC,
SILTY, OCC IMBD PYR, TRC IMBD
GLAUC, TRC FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, DIM YLW RNG

MD 3820 TVD 3805.77
INC 10.49 AZ 356.07
VS 30.03

MD 3915 TVD 3899.11
INC 10.92 AZ 355.65
VS 32.22

MD 4010 TVD 3992.5
INC 10.25 AZ 353.04
VS 34.84

Parkman (3800' MD - 3900' MD)



3800'- 3900': SS: 80%: PRED WHT -
LTGY - OPQ, MOD CONS, FN TO
MED GRN, SUBANG, W TO MODY
SRTD, CALC CMT, TRC FREE CALC,
SILTY, OCC IMBD PYR, IMBD
GLAUC, TRC FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, DIM YLW RNG

3900'- 4000': SLTST: 65% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, OCC
IMBD PYR, IMBD SS LAMN, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

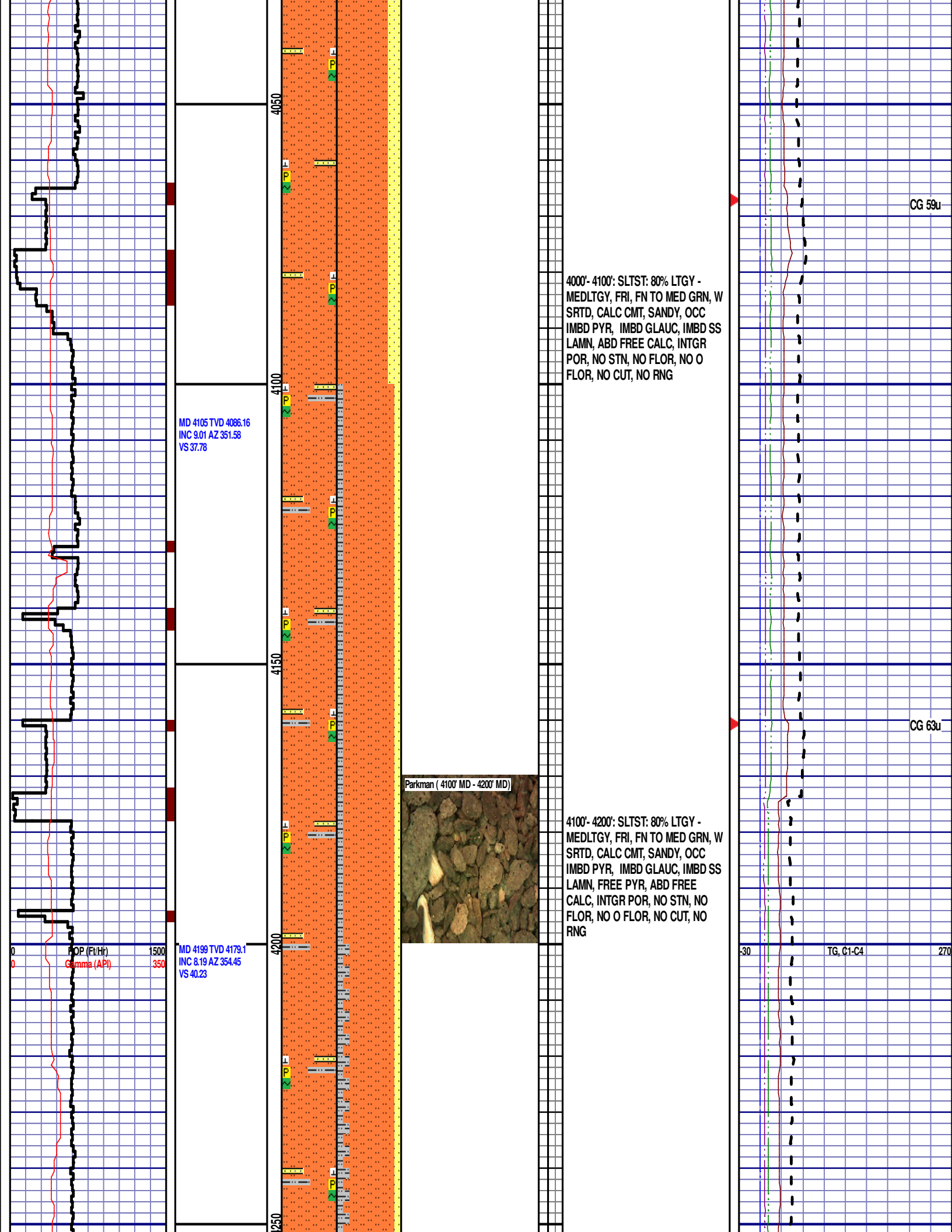
CG 115u

CG 121u

30 TG, C1-C4 270

ROP (Ft/Hr)
Gamma (API)

1500
350



CG 59u

4000' - 4100': SLTST: 80% LTGY - MEDLTGY, FRI, FN TO MED GRN, W SRTD, CALC CMT, SANDY, OCC IMBD PYR, IMBD GLAUC, IMBD SS LAMN, ABD FREE CALC, INTGR POR, NO STN, NO FLOR, NO O FLOR, NO CUT, NO RNG

MD 4105 TVD 4086.16
INC 9.01 AZ 351.58
VS 37.78

CG 63u

Parkman (4100' MD - 4200' MD)

4100' - 4200': SLTST: 80% LTGY - MEDLTGY, FRI, FN TO MED GRN, W SRTD, CALC CMT, SANDY, OCC IMBD PYR, IMBD GLAUC, IMBD SS LAMN, FREE PYR, ABD FREE CALC, INTGR POR, NO STN, NO FLOR, NO O FLOR, NO CUT, NO RNG

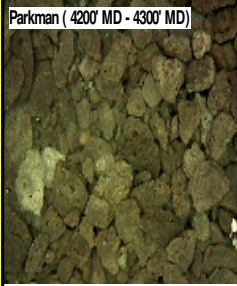
MD 4199 TVD 4179.1
INC 8.19 AZ 354.45
VS 40.23

POP (Ft/Hr)
Gamma (API)

TG, C1-C4

CG 55u

MD 4294 TVD 4273.17
INC 7.83 AZ 2.8
VS 41.26



4200'- 4300': SLTST: 75% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, OCC
IMBD PYR, IMBD GLAUC, IMBD SS
LAMN, FREE PYR, FREE CALC,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

4300

4350

SUSSEX
(4349' MD 4327' TVD)

CG 100u



4300'- 4400': SS: 60%: PRED WHT -
LTGY - OPQ, MOD CONS, FN TO
MED GRN, SUBANG, W TO MODY
SRTD, CALC CMT, TRC FREE PYR,
TRC FREE CALC, SILTY, OCC IMBD
PYR, IMBD GLAUC, FREE SLTY SH,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

4400

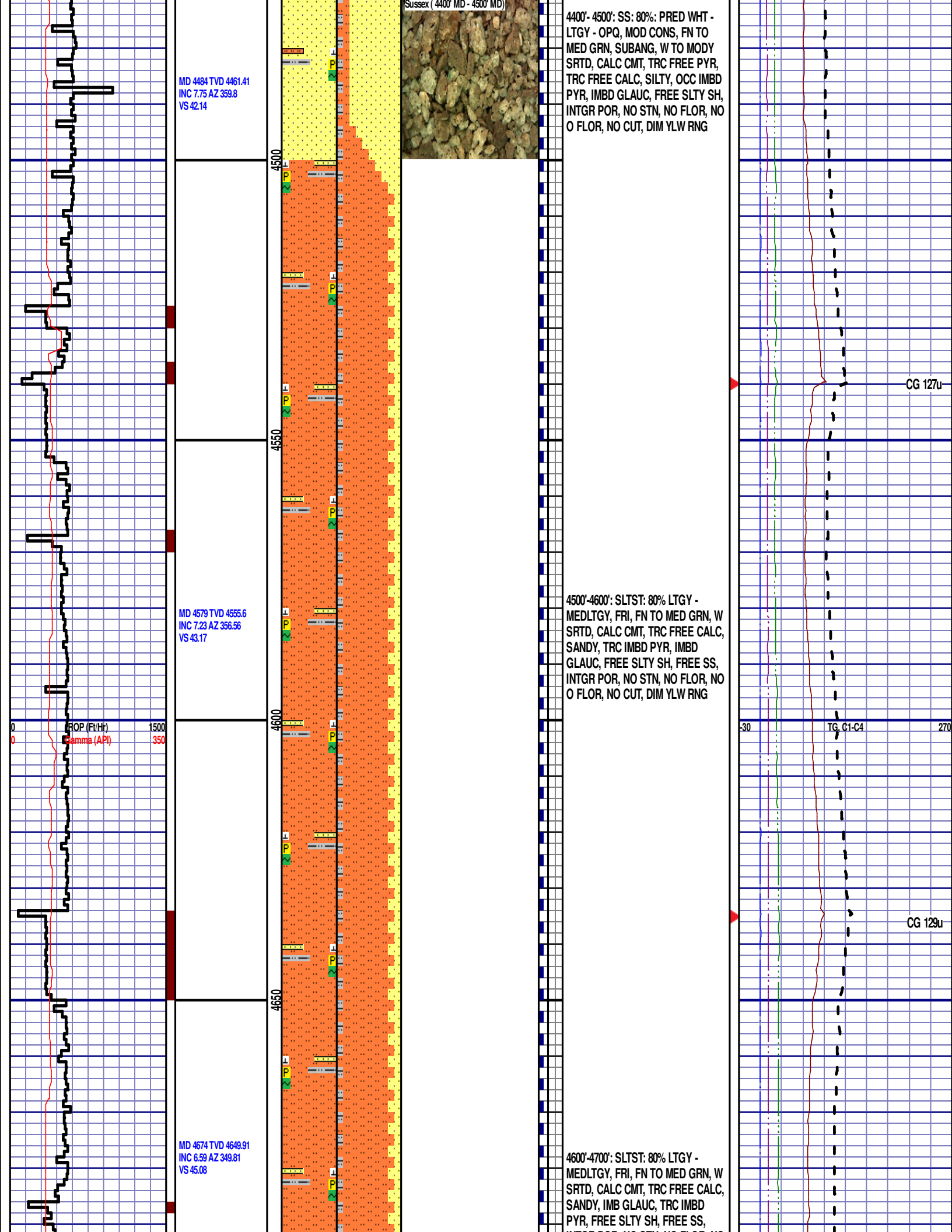
MD 4389 TVD 4367.29
INC 7.84 AZ 0.84
VS 41.53

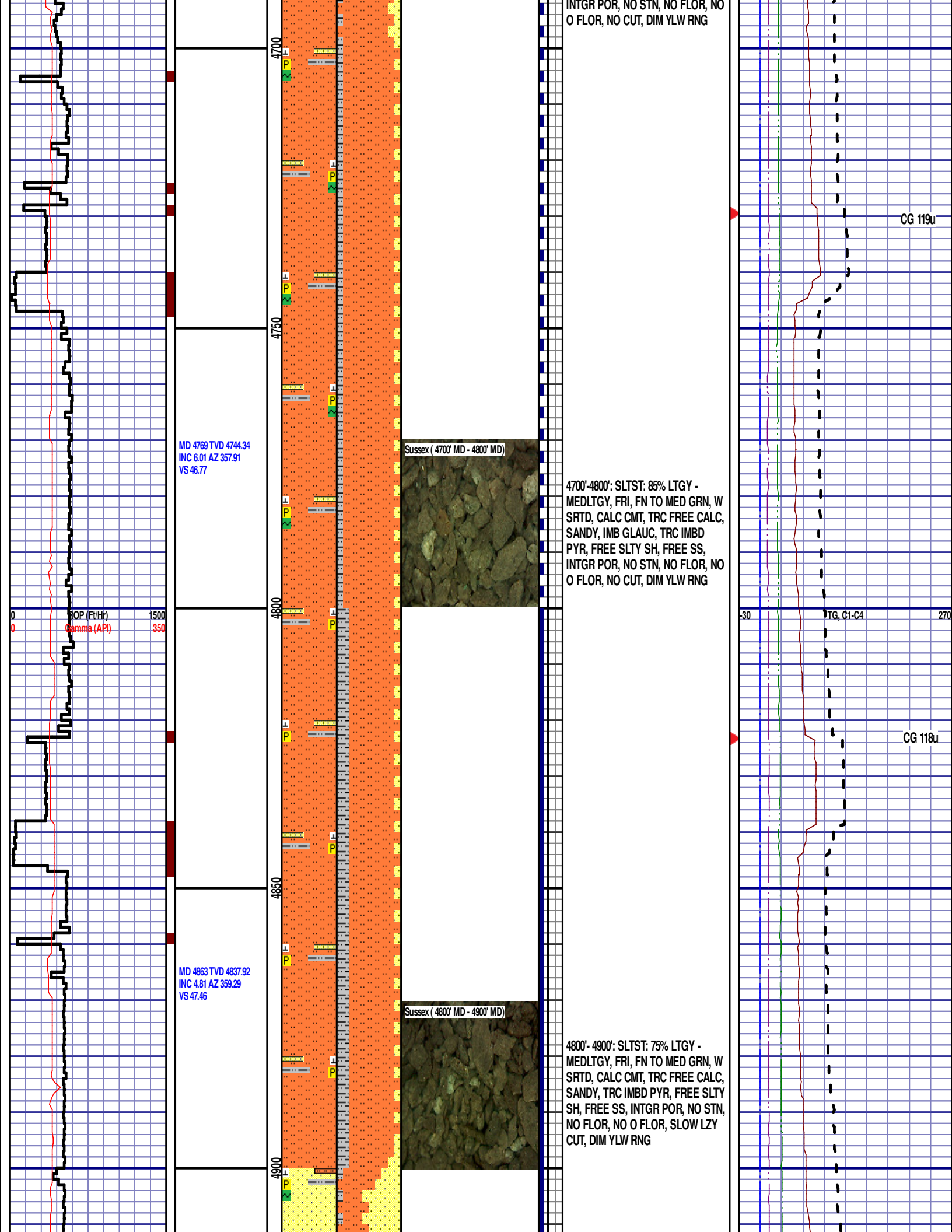
ROP (Ft/Hr)
Gamma (API)

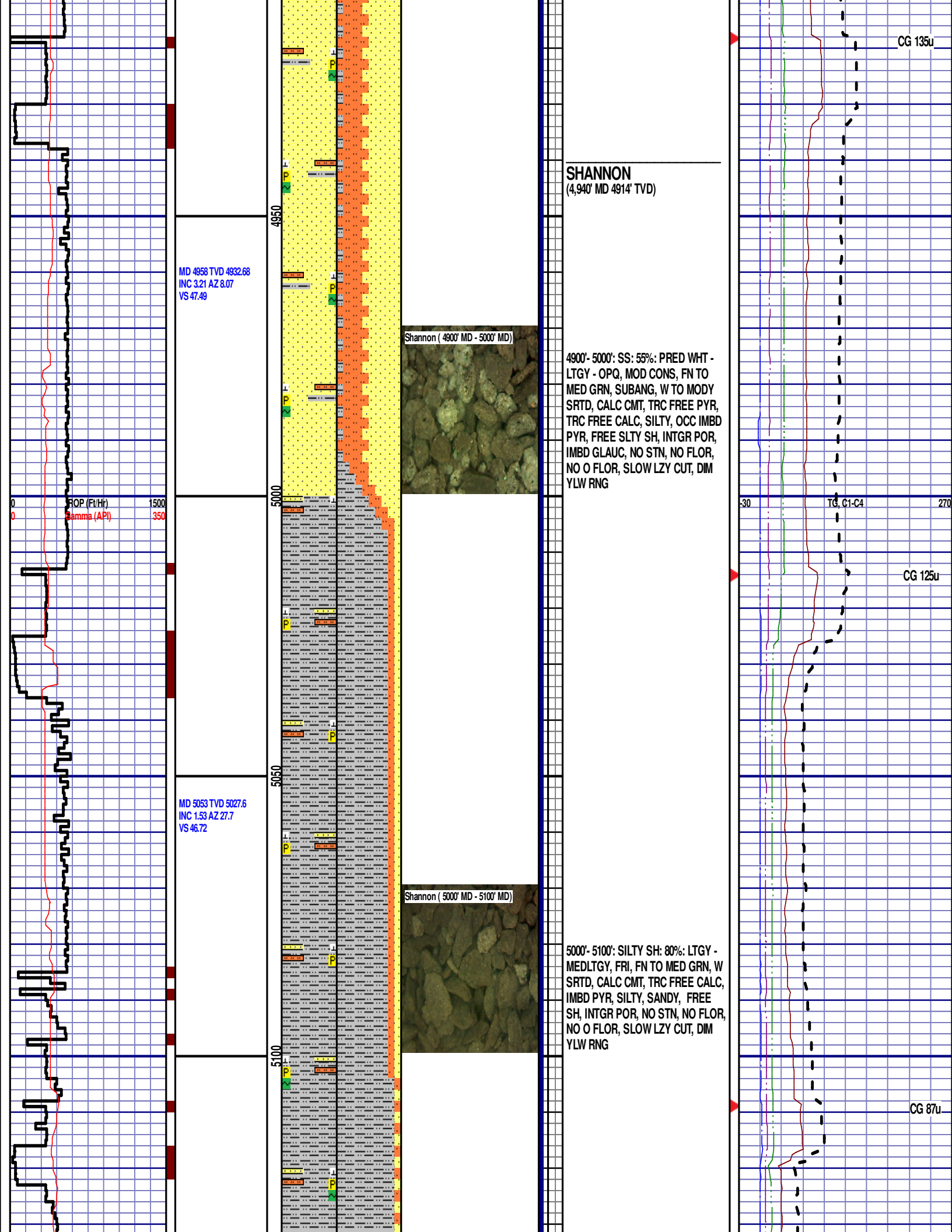
30 TG, C1-C4 270

4450

CG 122u







SHANNON
(4,940' MD 4914' TVD)

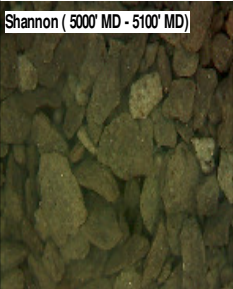
MD 4958 TVD 4932.68
INC 3.21 AZ 8.07
VS 47.49



Shannon (4900' MD - 5000' MD)

4900'- 5000': SS: 55%: PRED WHT -
LTGY - OPQ, MOD CONS, FN TO
MED GRN, SUBANG, W TO MODY
SRTD, CALC CMT, TRC FREE PYR,
TRC FREE CALC, SILTY, OCC IMBD
PYR, FREE SLTY SH, INTGR POR,
IMBD GLAUC, NO STN, NO FLOR,
NO O FLOR, SLOW LZY CUT, DIM
YLW RNG

MD 5053 TVD 5027.6
INC 1.53 AZ 27.7
VS 46.72



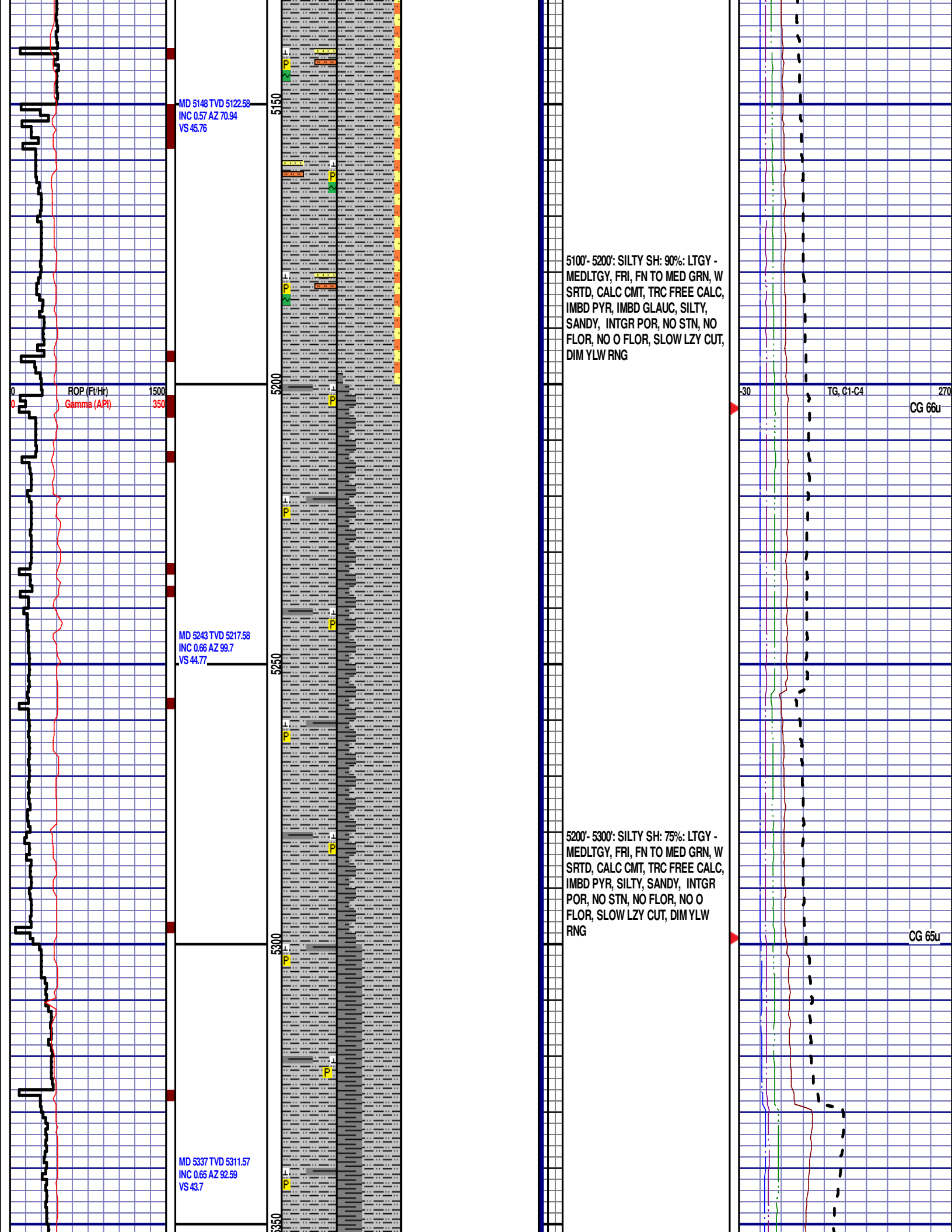
Shannon (5000' MD - 5100' MD)

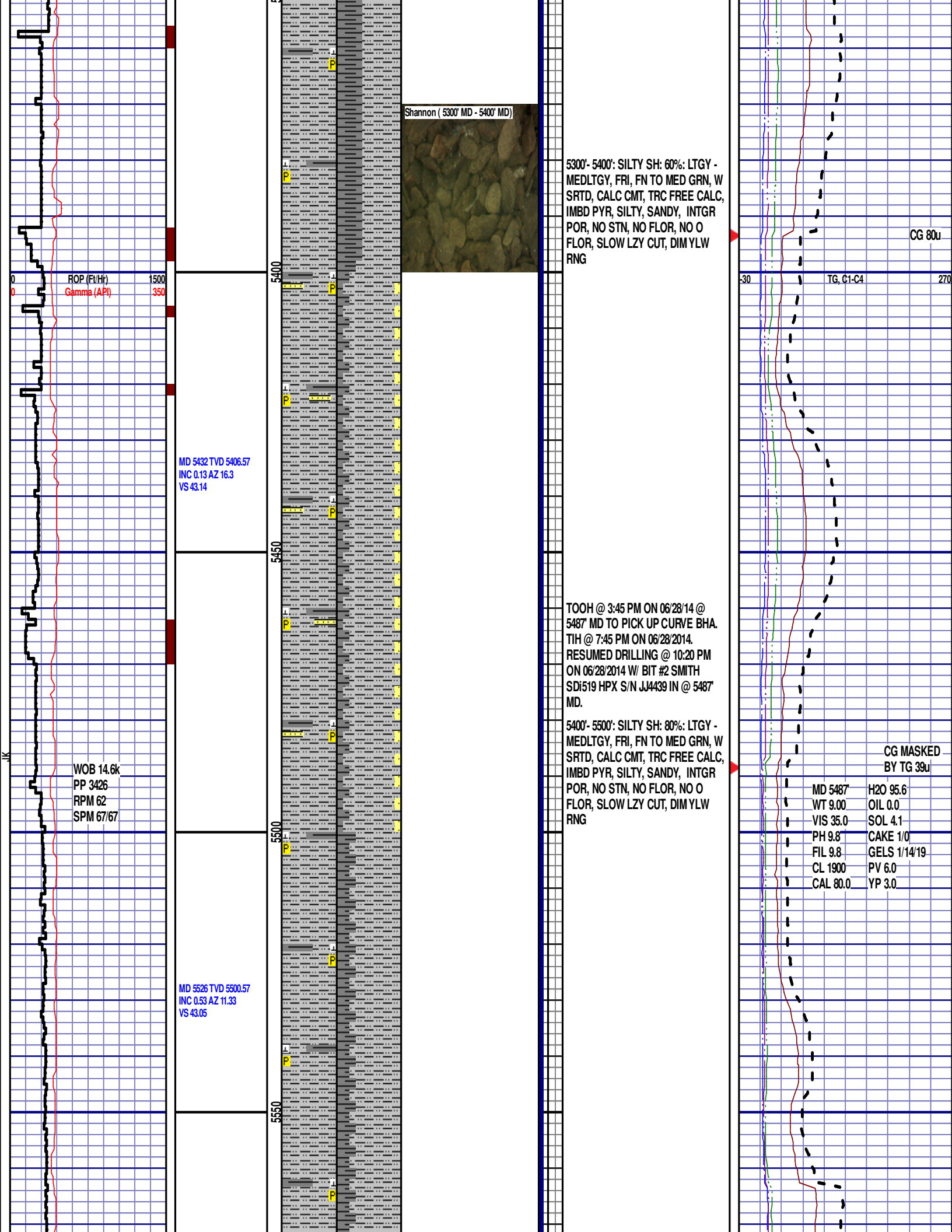
5000'- 5100': SILTY SH: 80%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
IMBD PYR, SILTY, SANDY, FREE
SH, INTGR POR, NO STN, NO FLOR,
NO O FLOR, SLOW LZY CUT, DIM
YLW RNG

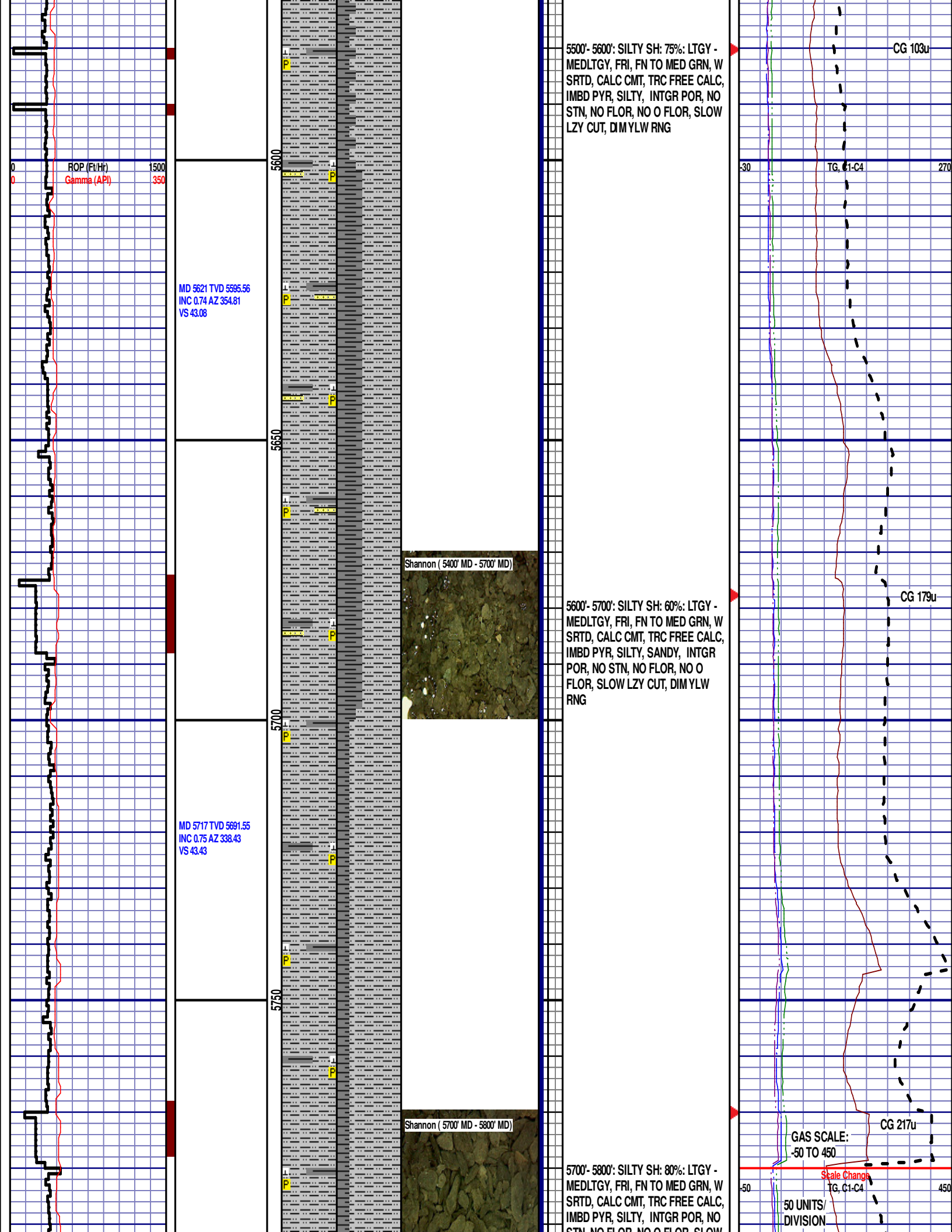
CG 135u

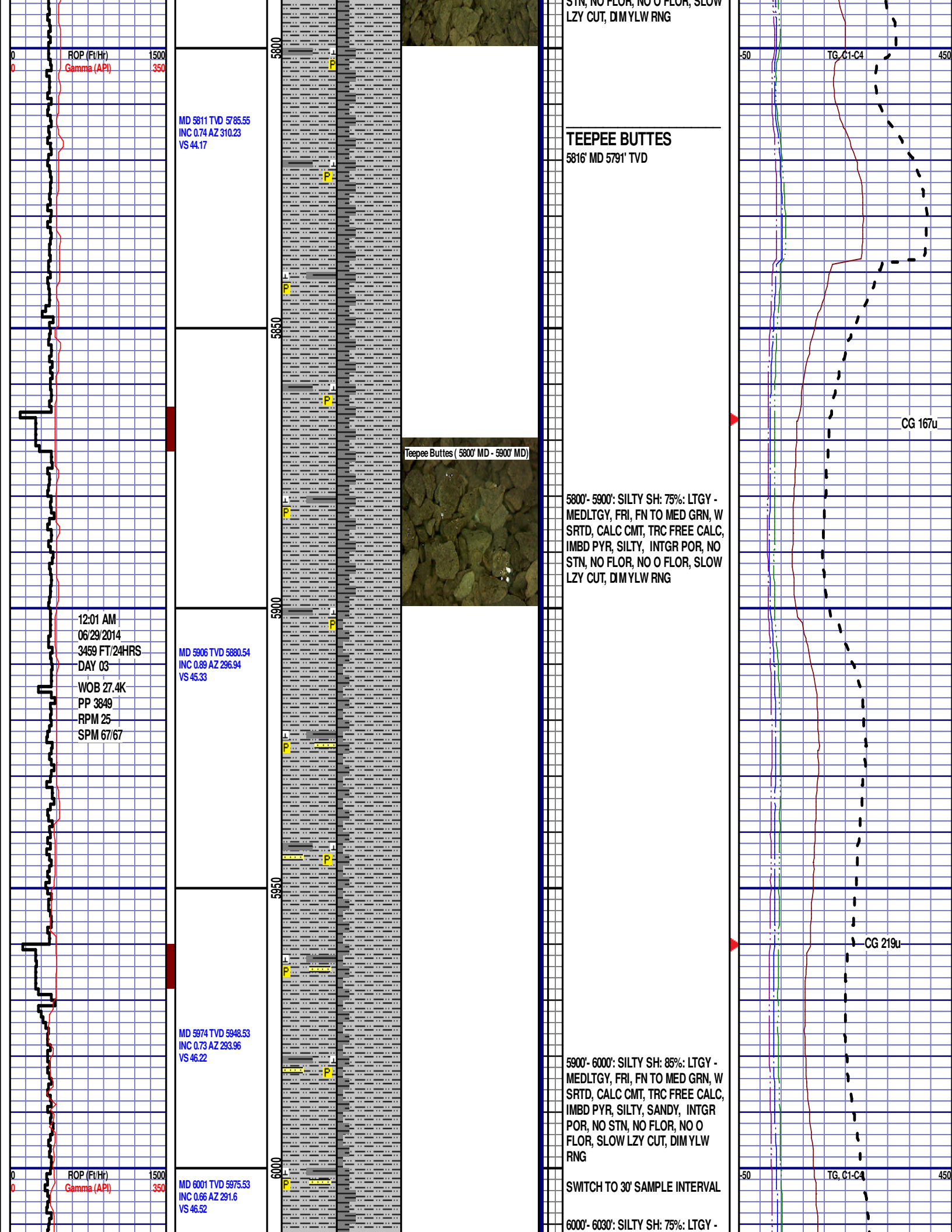
CG 125u

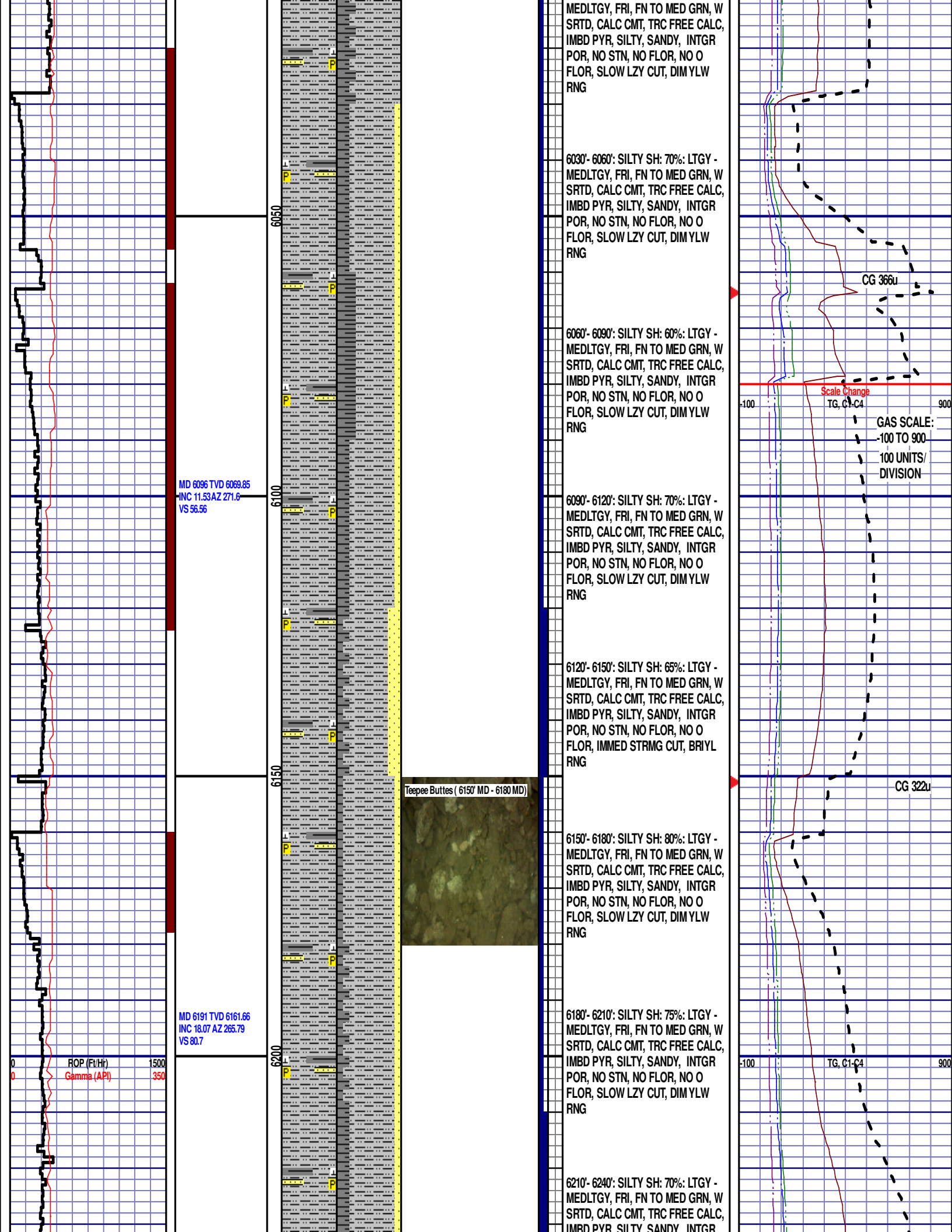
CG 87u

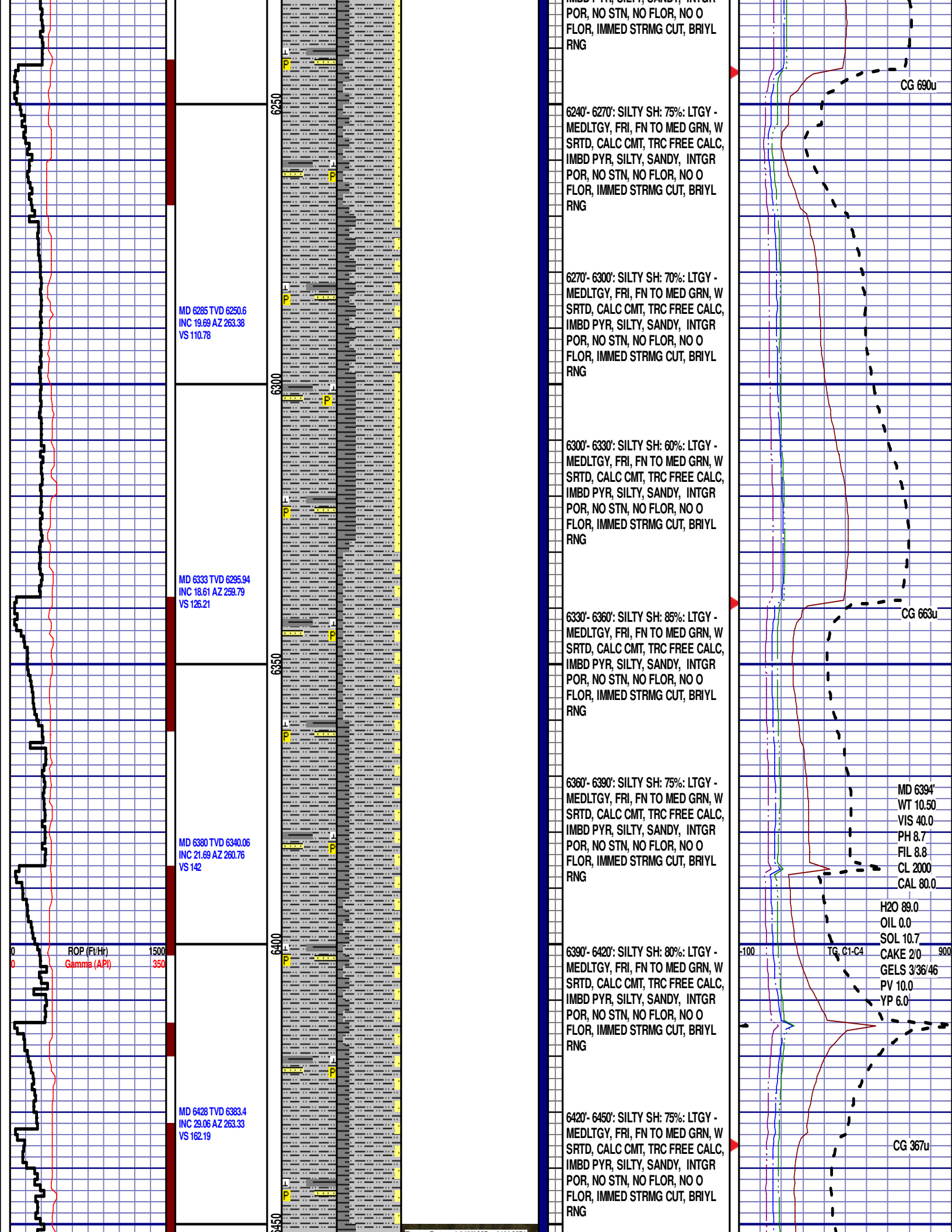


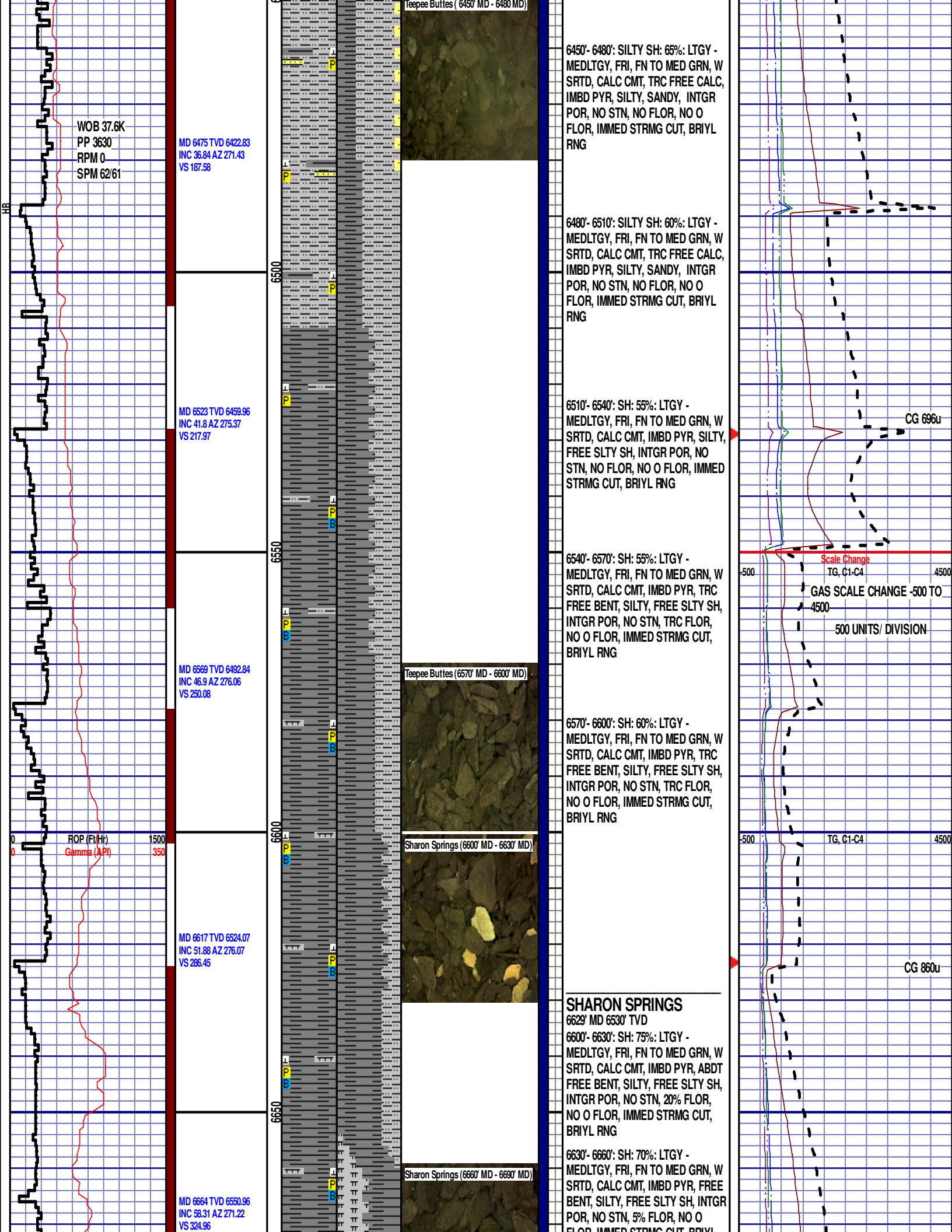


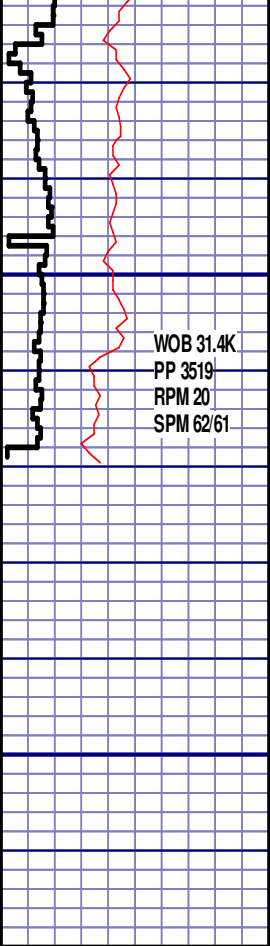






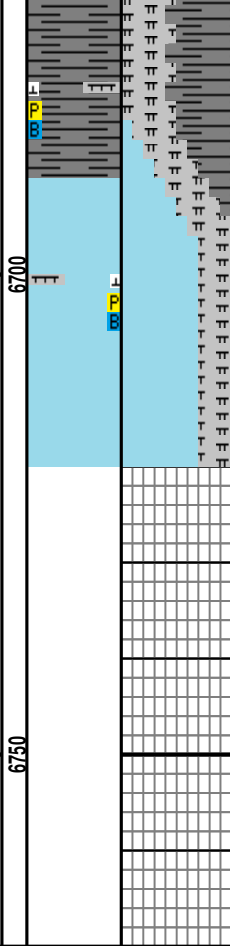






WOB 31.4K
PP 3519
RPM 20
SPM 62/61

MD 6712 TVD 6574.37
INC 63.3 AZ 269.81
VS 366.8



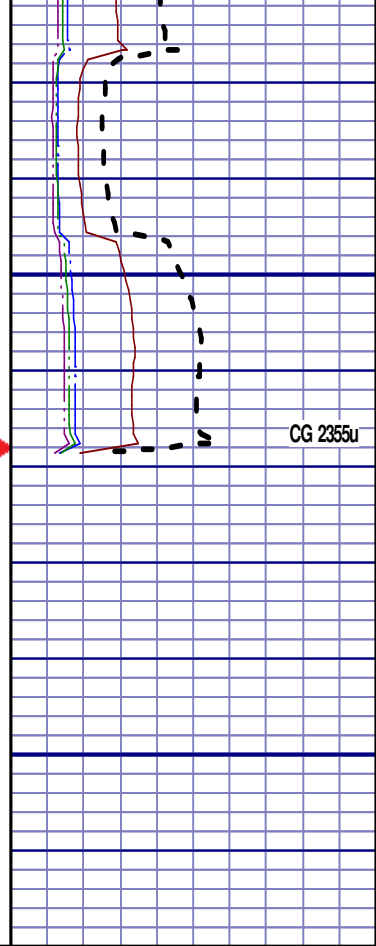
Niobrara A Chalk (6690' MD - 6720' MD)

6660' - 6690': SH: 55%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, IMBD PYR, TRC
FREE BENT, SILTY, 45% FREE MRL,
INTGR POR, NO STN, TRC FLOR,
NO O FLOR, IMMED STRMG CUT,
BRIYL RNG

NIORRARA A CHALK

6704' MD 6570' TVD
6690'-6720': CHK: 70% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
TRC FREE BENT, IMBD CALC, IMBD
PYR, 30% FREE MRL, NO STN, TRC
FLOR, NO O FLOR, IMMED STRMG
CUT, BRIYL RNG

END OF VERTICAL LOG @ 6720' MD
ON 6/29/14. CONTINUED ON
HORIZONTAL LOG.



CG 2355u