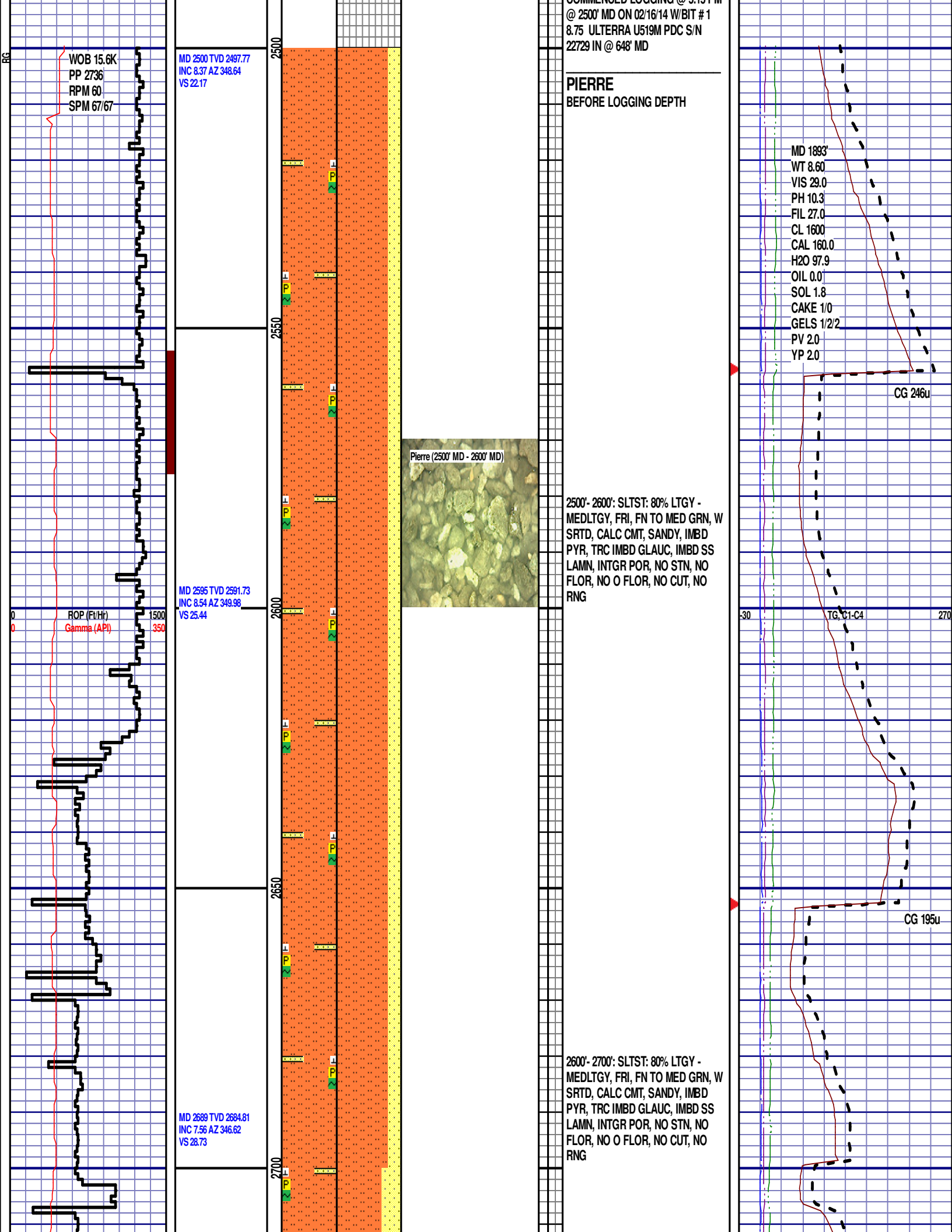
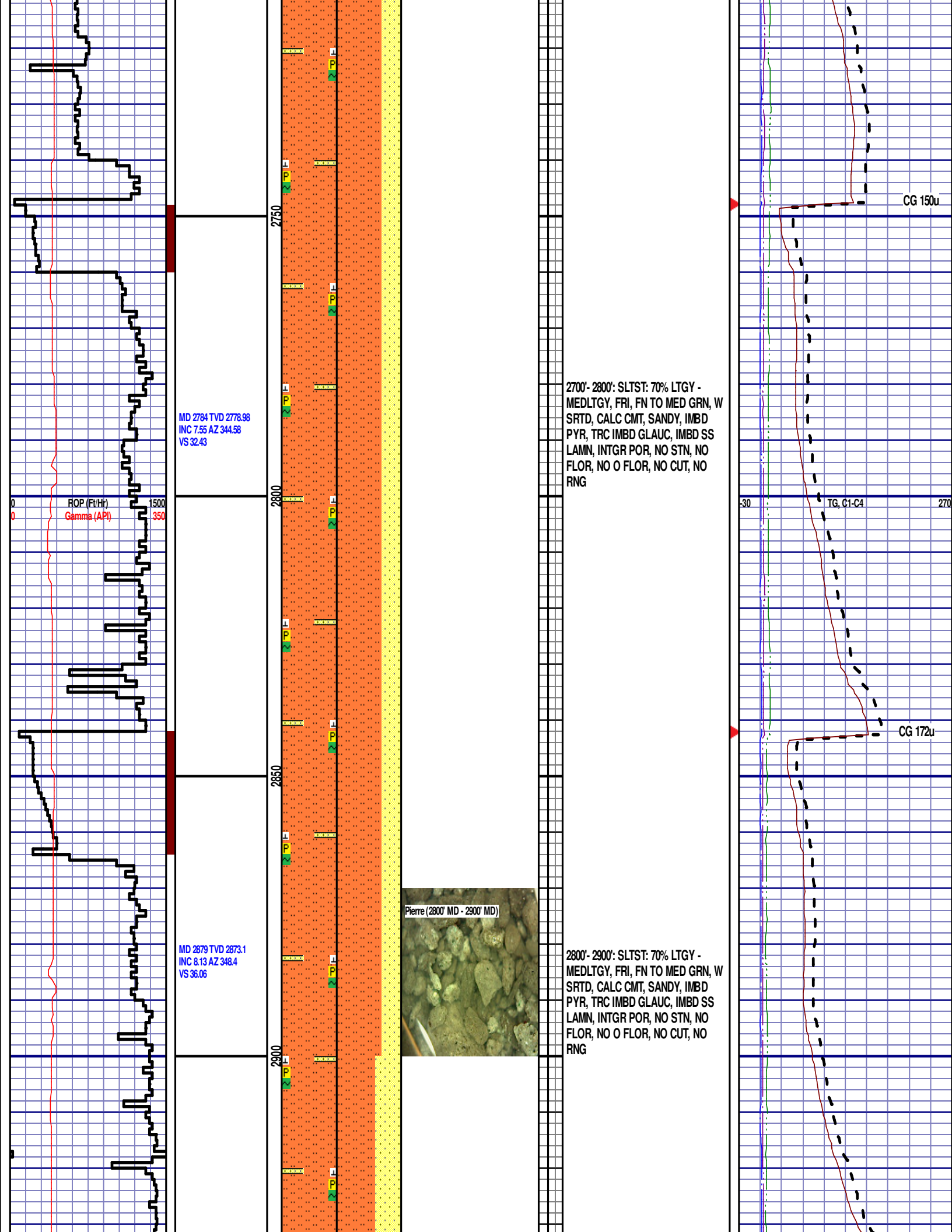
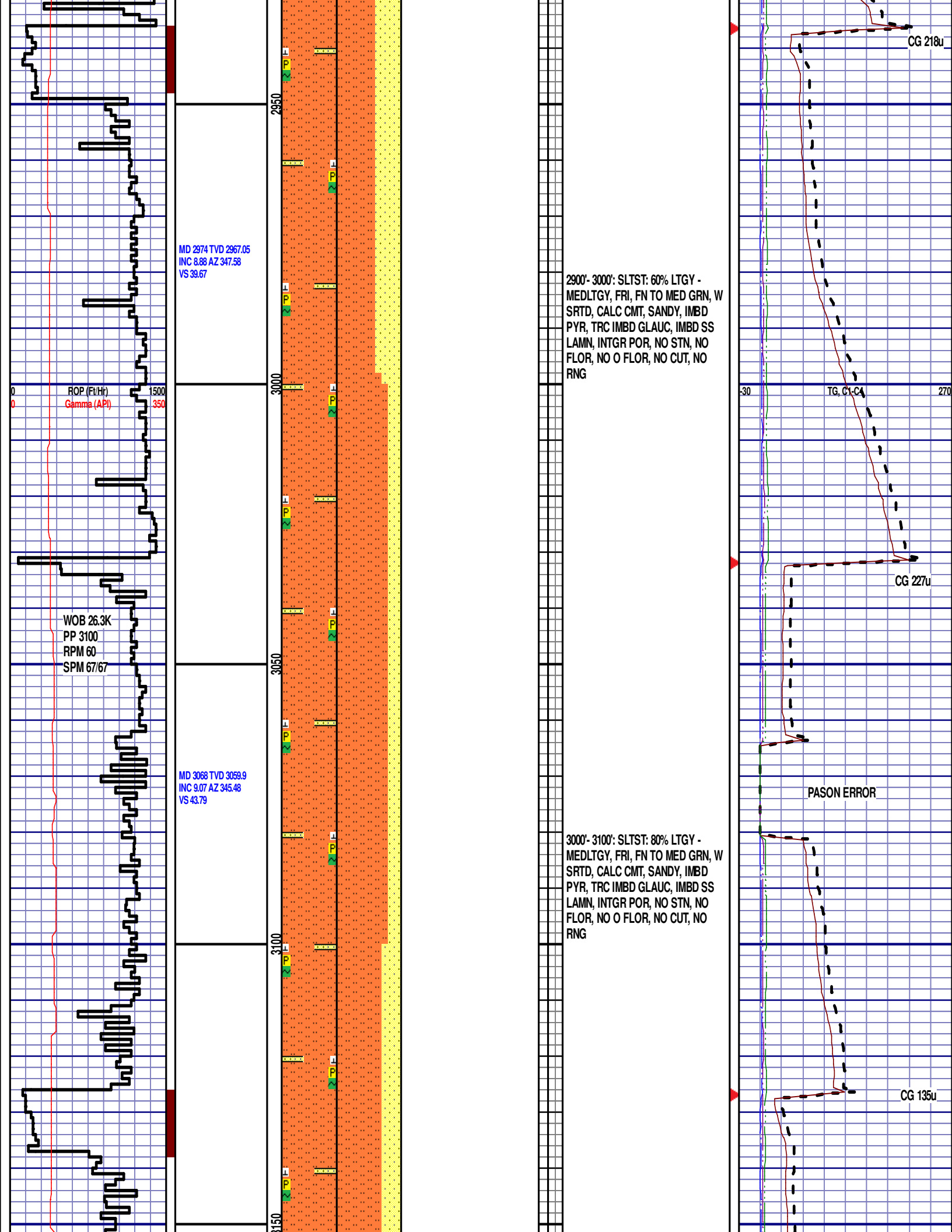


Logger On Shift		ROP (Ft/Hr) Gamma (API)		Drill Depth v. Time		Survey Data		Depth		Lithology		Lithology Percentages		Sample Photographs		Porosity		Geological Description		TG (1-8) C1 (units) C2 (units) C3 (units) C4 (units)		Total Gas, C1-C4			
0		ROP (Ft/Hr) Gamma (API)		1500 350				24								Oil Fair Good		NOBLE ENERGY WELLS RANCH AA35-69-1HNB 36-T6N-R63W 605' FNL, 164' FWL WELD COUNTY, CO H&P 321 LOGGERS: HANNAH BLATCHFORD ROB GULLIKSEN CALLED OUT BY COMPANY MAN 2/16/14 COMMENCED LOGGING @ 5:15 PM		-30		TG, C1-C4		270	
		SLIDE=RED ROTATE=WHITE																							
		ROP SCALE: 0 TO 1500 (FT/HR)																		CONNECTIONS ARE MARKED WITH RED TRIANGLES					
		GAMMA SCALE: 0 TO 350 (GAMMA DATA AS RECEIVED)																		GAS SCALE: -30 TO 270 30 UNITS/DIVISION					
																				DRILLING ON WATER-BASED MUD					







MD 3163 TVD 3153.93
INC 7.31 AZ 343.12
VS 48.07

ROP (Ft/Hr)
Gamma (API)

1500
350

Pierre (3100' MD - 3200' MD)



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

MD 3258 TVD 3248.16
INC 7.25 AZ 343.71
VS 52.07

3200
3250
3300
3350

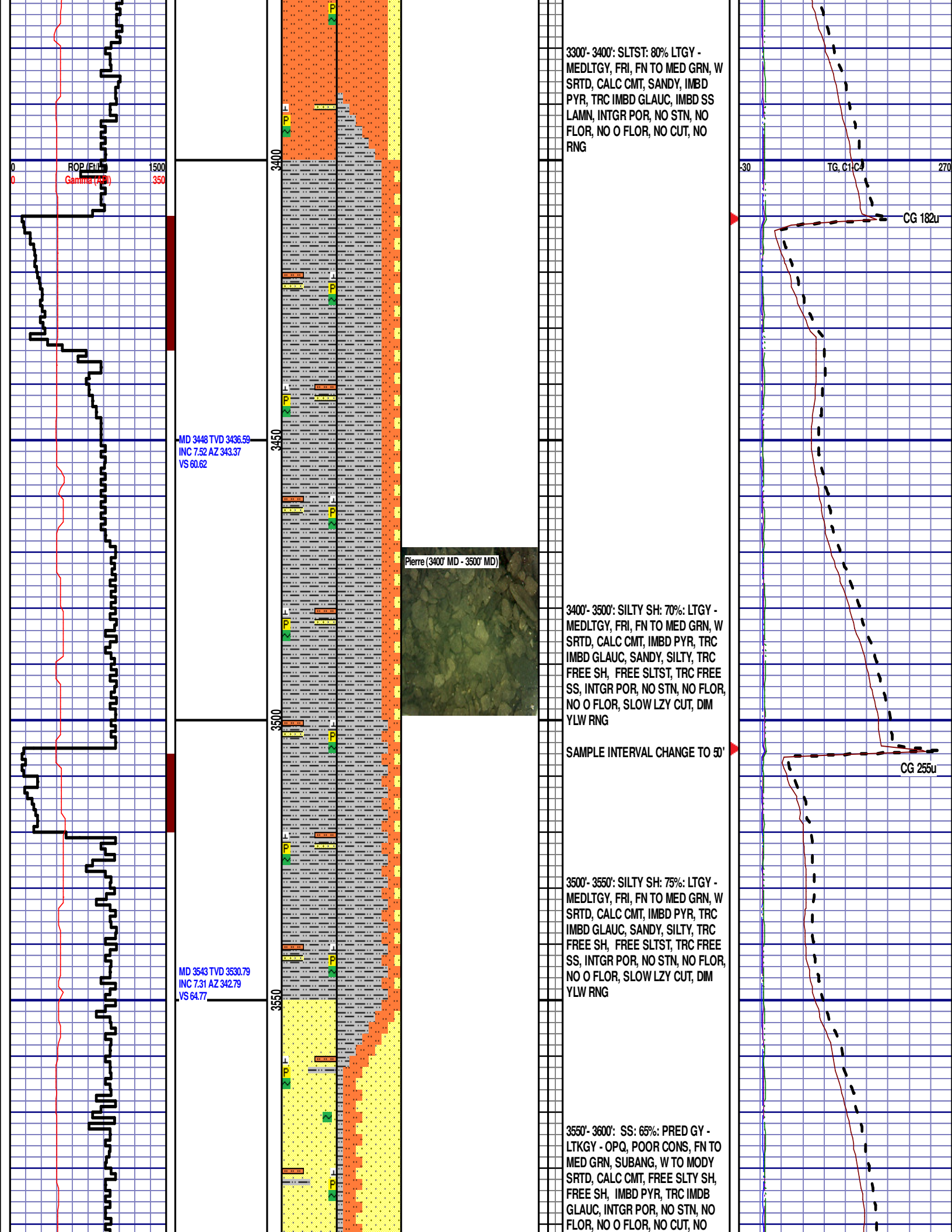
3200'- 3300': SLTST: 80% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, SANDY, IMBD
PYR, TRC IMBD GLAUC, IMBD SS
LAMN, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

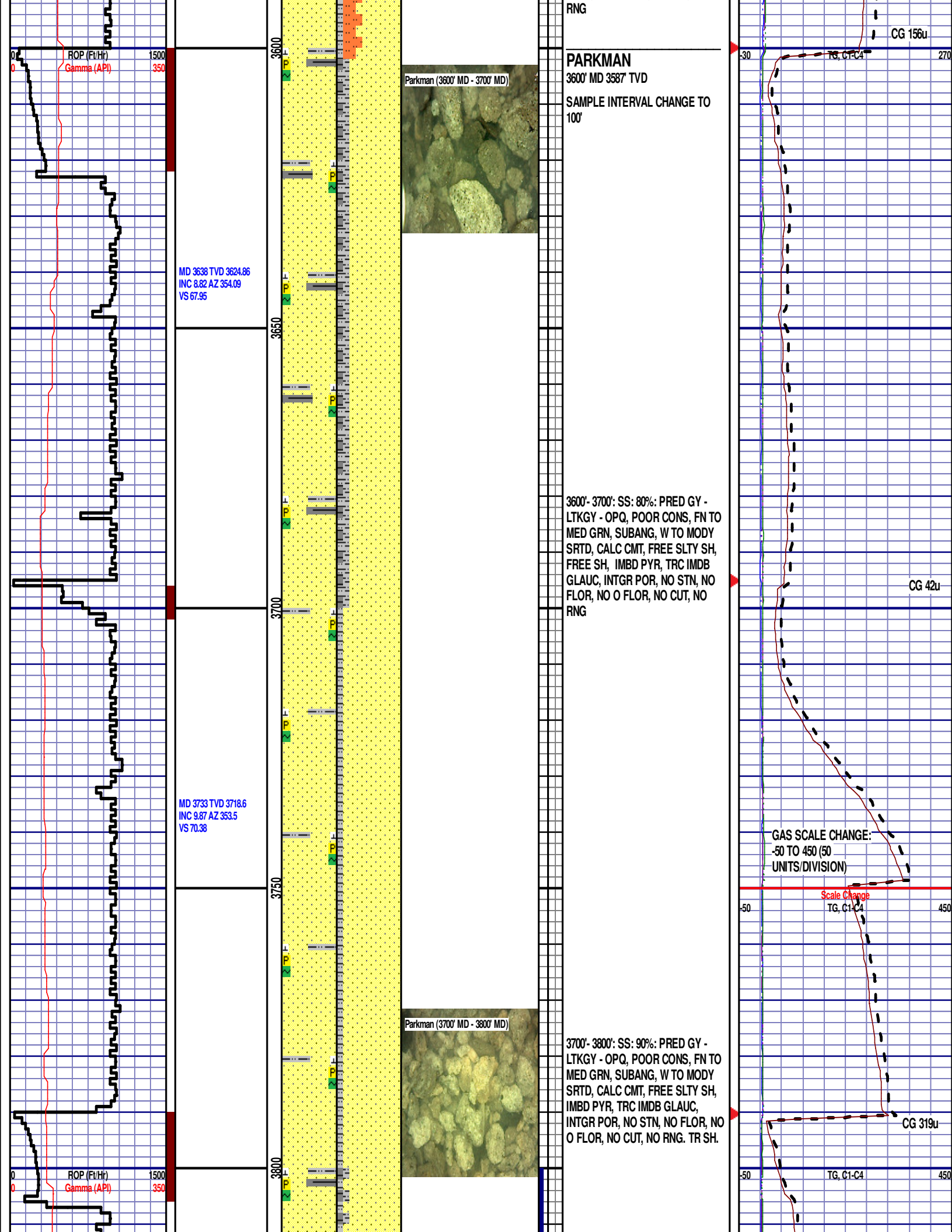
MD 3353 TVD 3342.39
INC 7.37 AZ 341.14
VS 56.29

TG, C1-C4

CG 61u

CG 106u





MD 3828 TVD 3812.23
INC 9.56 AZ 350.8
VS 73.35

MD 3923 TVD 3905.97
INC 9.18 AZ 347.52
VS 77

MD 4018 TVD 4000
INC 7.12 AZ 345.12
VS 80.8

ROP (Ft/Hr)
Gamma (API)

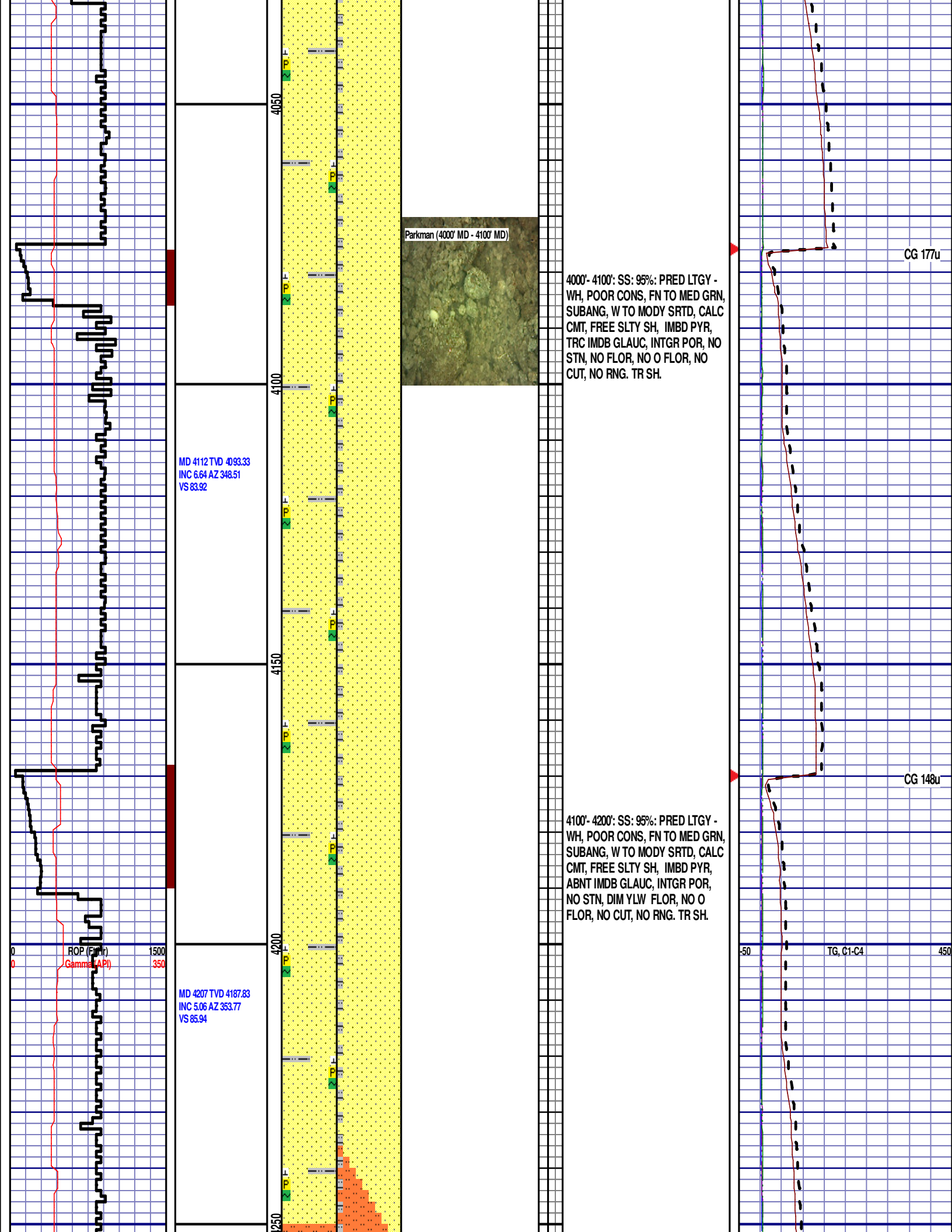
3800'- 3900': SS: 85%: PRED GY -
LTKGY - OPQ, POOR CONS, FN TO
MED GRN, SUBANG, W TO MODY
SRTD, CALC CMT, FREE SLTY SH,
FREE SH, IMBD PYR, TRC IMDB
GLAUC, INTGR POR, NO STN, NO
FLOR, NO O FLOR, SLOW LZY CUT,
NO RNG.

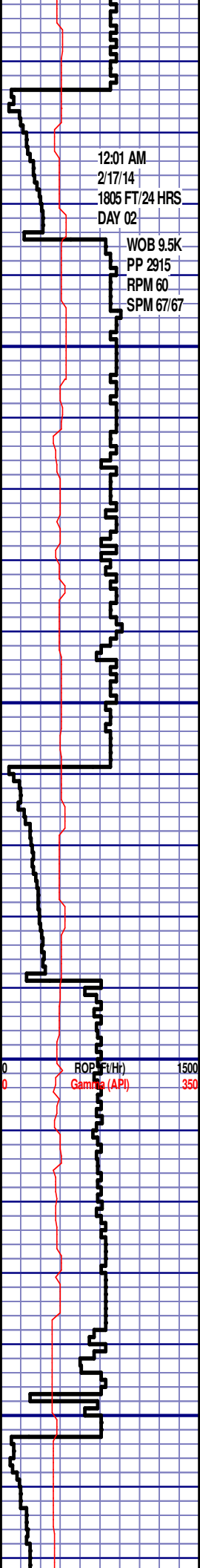
3900'- 4000': SS: 95%: PRED LTGY -
WH, POOR CONS, FN TO MED GRN,
SUBANG, W TO MODY SRTD, CALC
CMT, FREE SLTY SH, IMBD PYR,
TRC IMDB GLAUC, INTGR POR, NO
STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG.

CG 246u

CG 260u

TG, C1-C4





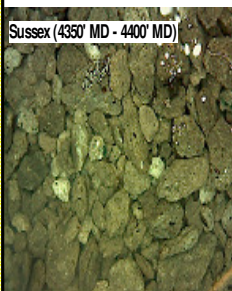
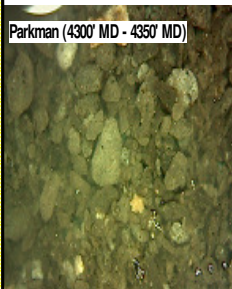
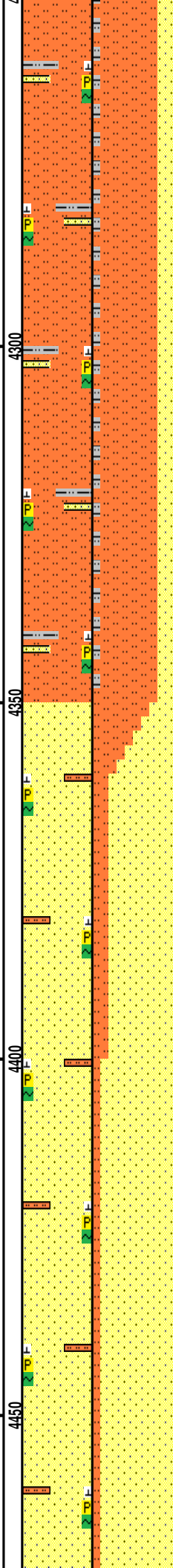
12:01 AM
2/17/14
1805 FT/24 HRS
DAY 02

WOB 9.5K
PP 2915
RPM 60
SPM 67/67

MD 4302 TVD 4282.54
INC 3.82 AZ 346.34
VS 87.5

MD 4396 TVD 4376.41
INC 2.17 AZ 347.26
VS 88.87

ROP (ft/hr)
Gamma (API)



SAMPLE INTERVAL CHANGE TO 50'

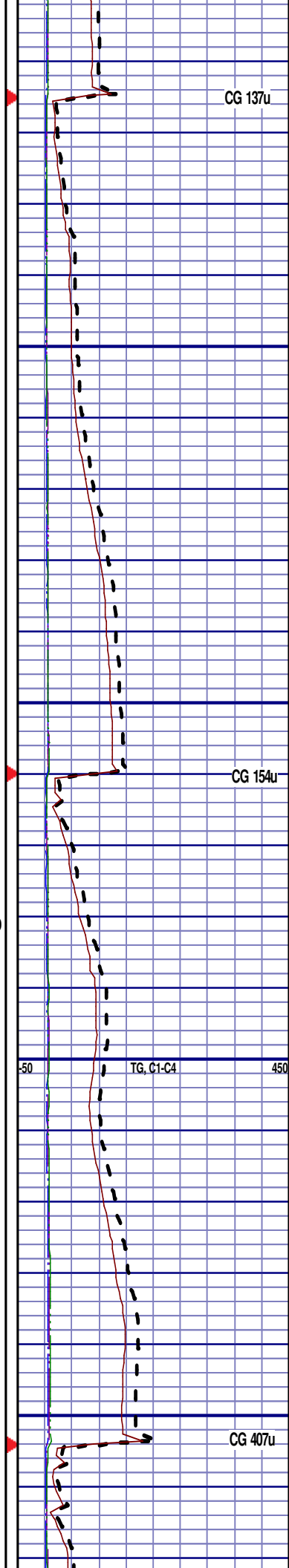
4200'- 4300': SLTST: 75% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SLTY SH,
SANDY, IMBD PYR, IMBD GLAUC,
IMBD SS LAMN, INTGR POR, NO
STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

4300'- 4350': SLTST: 75% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SLTY SH,
SANDY, IMBD PYR, IMBD GLAUC,
IMBD SS LAMN, INTGR POR, NO
STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

SUSSEX
4350' MD 4330' TVD

4350'- 4400': SS: 80%: PRED LTGY -
SCAT WH, POOR CONS, FN TO MED
GRN, SUBANG, W TO MODY SRTD,
CALC CMT, FREE SLTY SH, IMBD
PYR, IMBD GLAUC, INTGR POR,
NO STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG. TR SH.

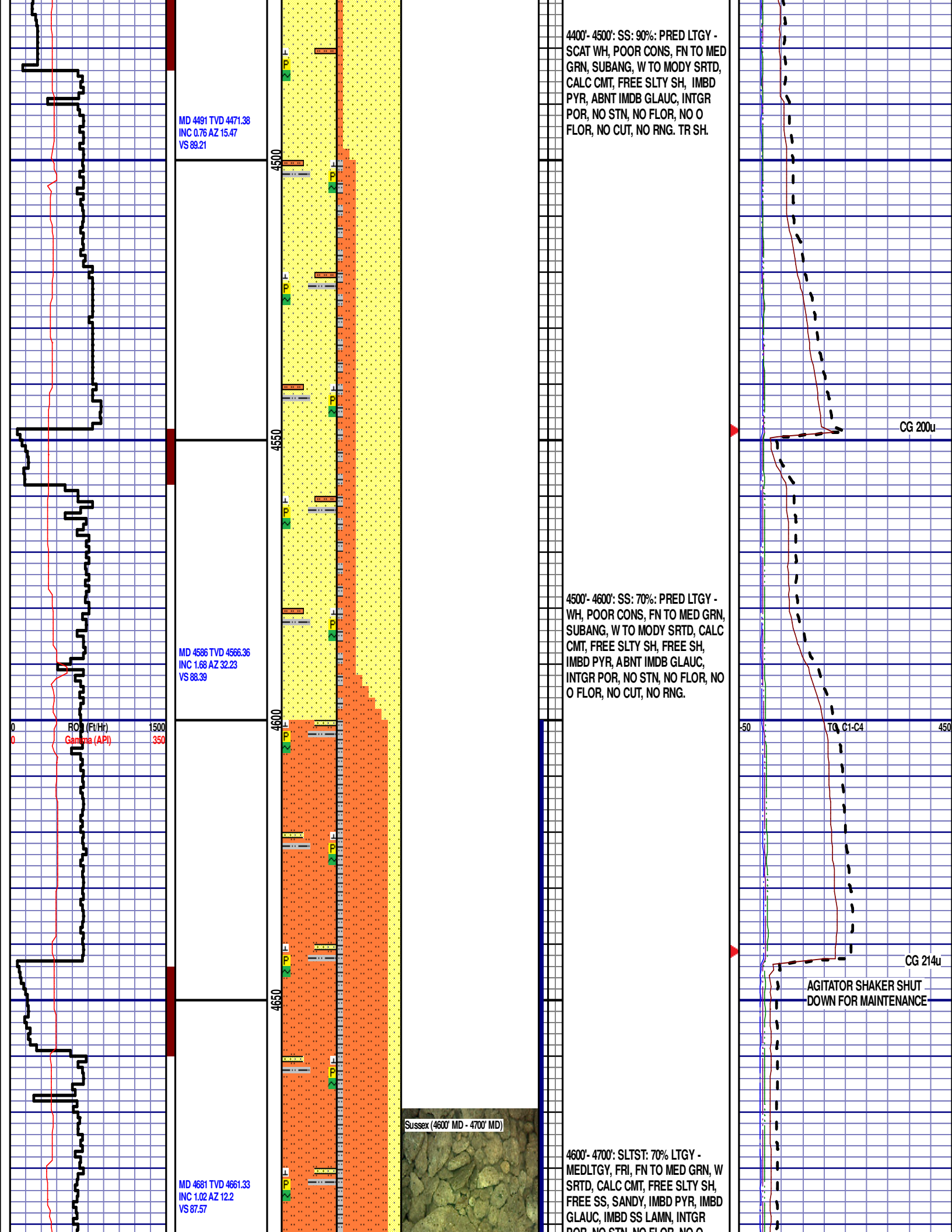
SAMPLE INTERVAL CHANGE TO
100'

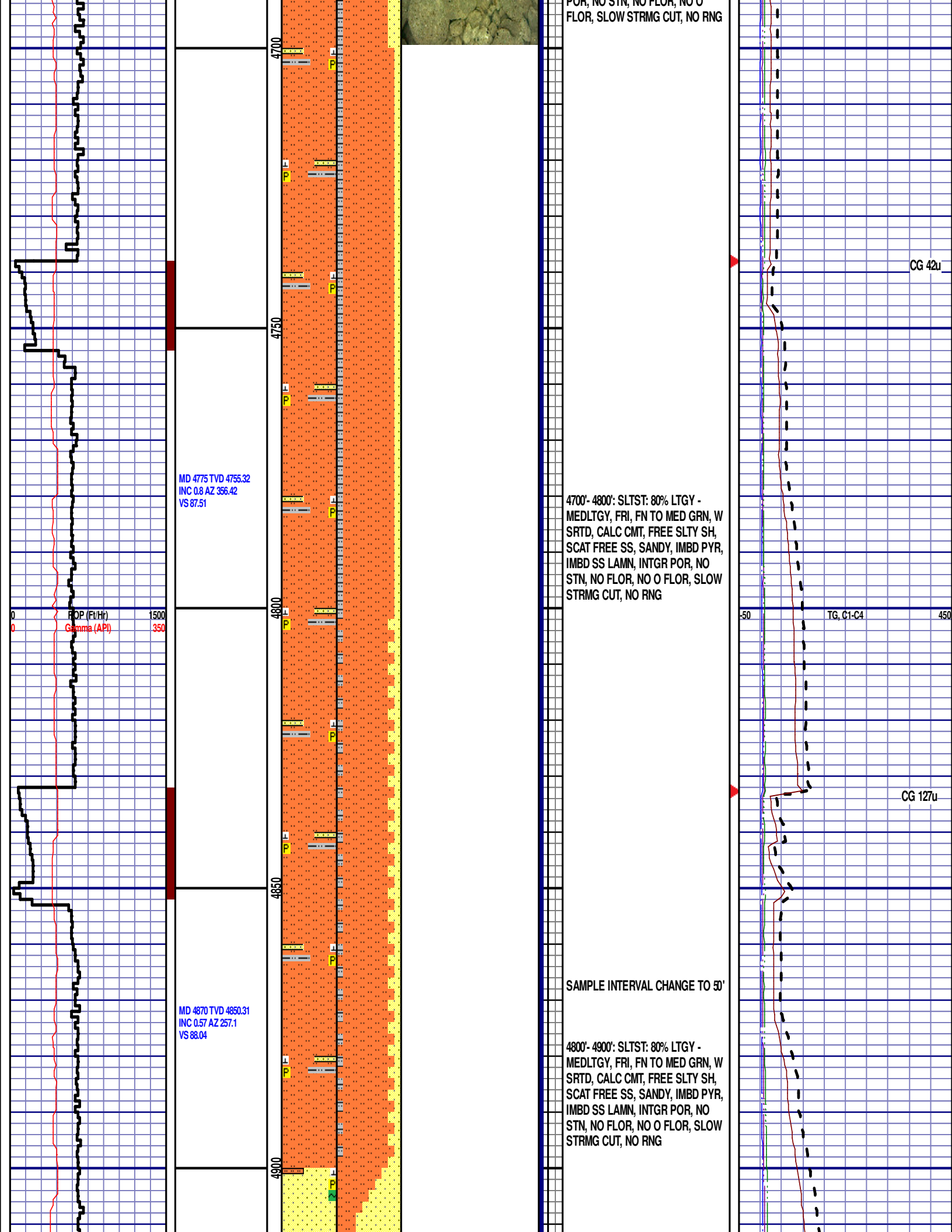


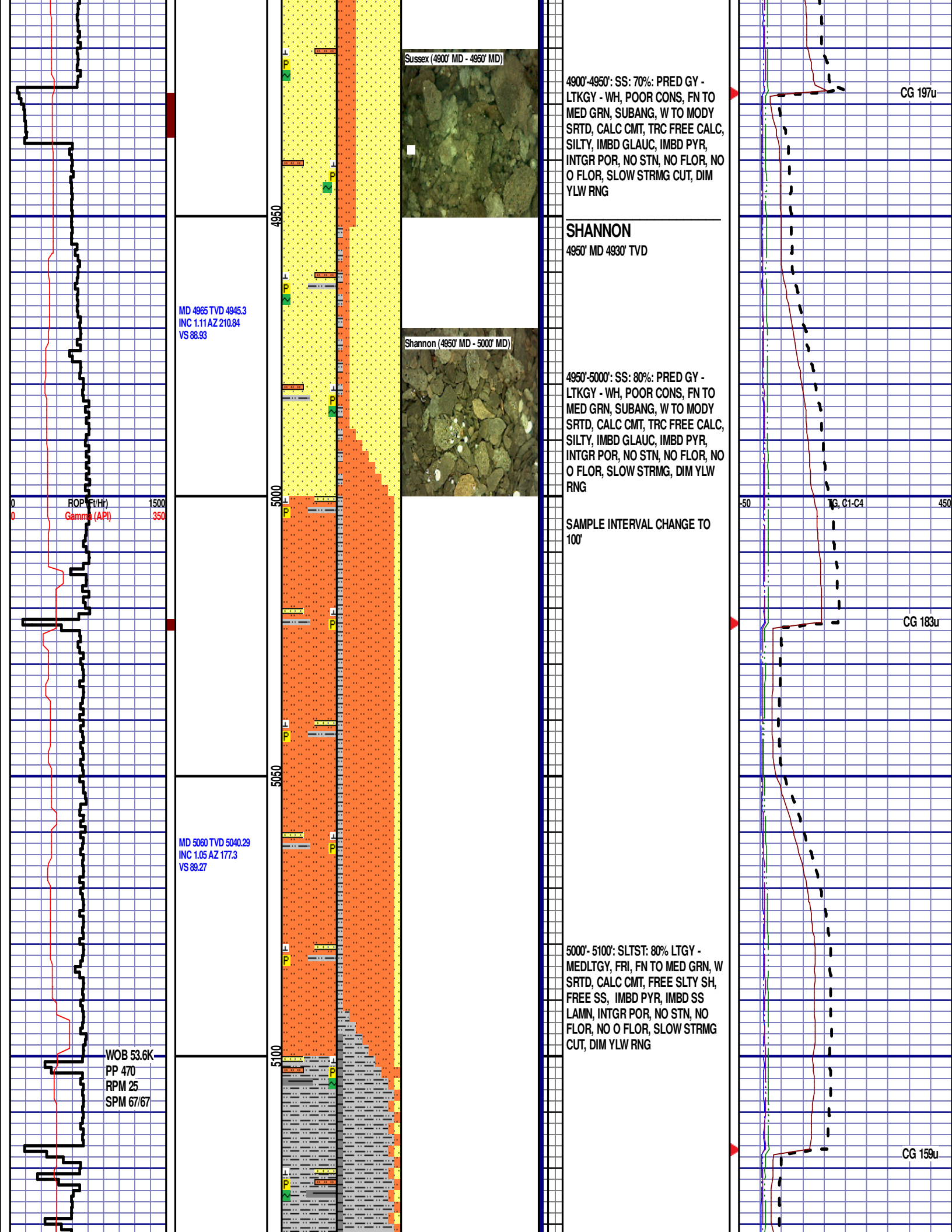
CG 137u

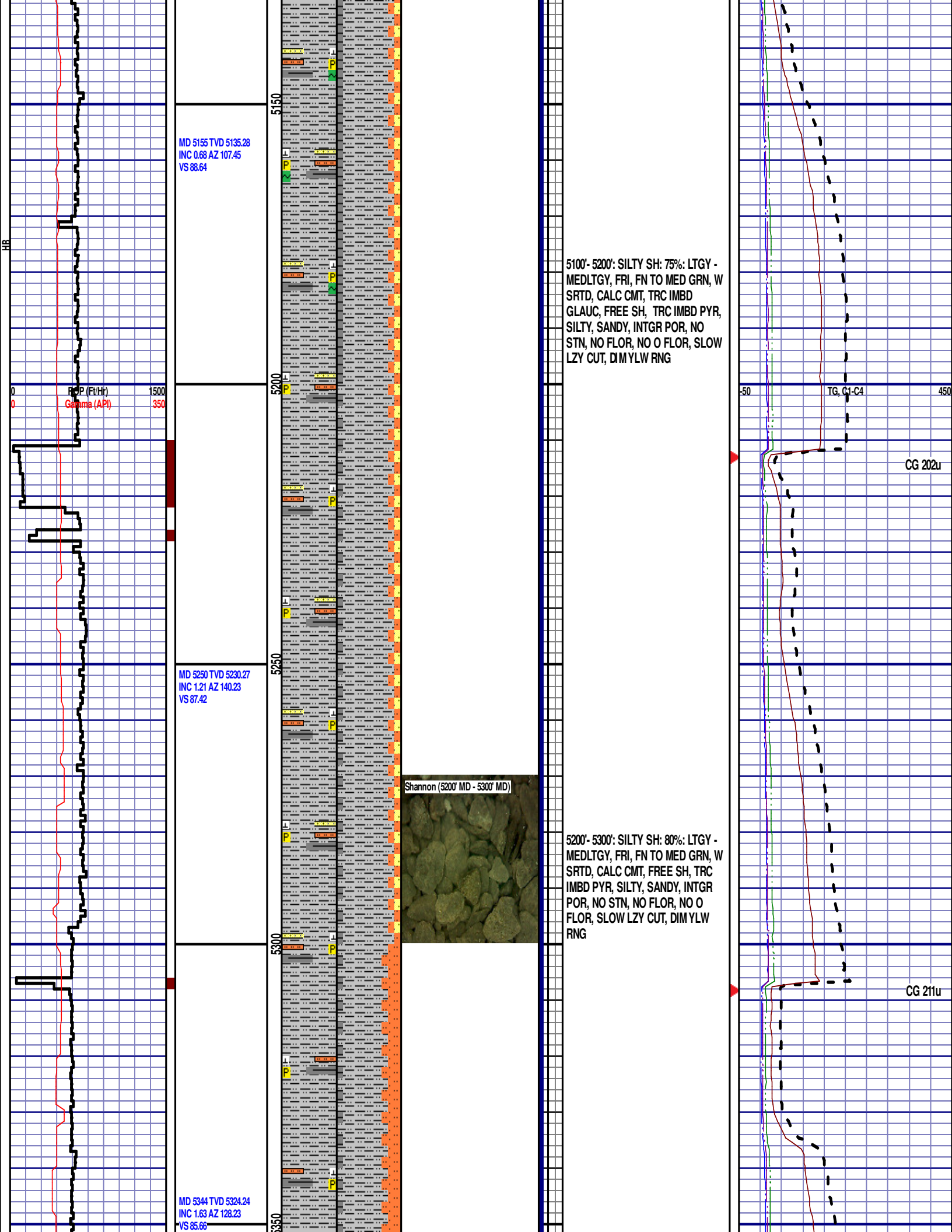
CG 154u

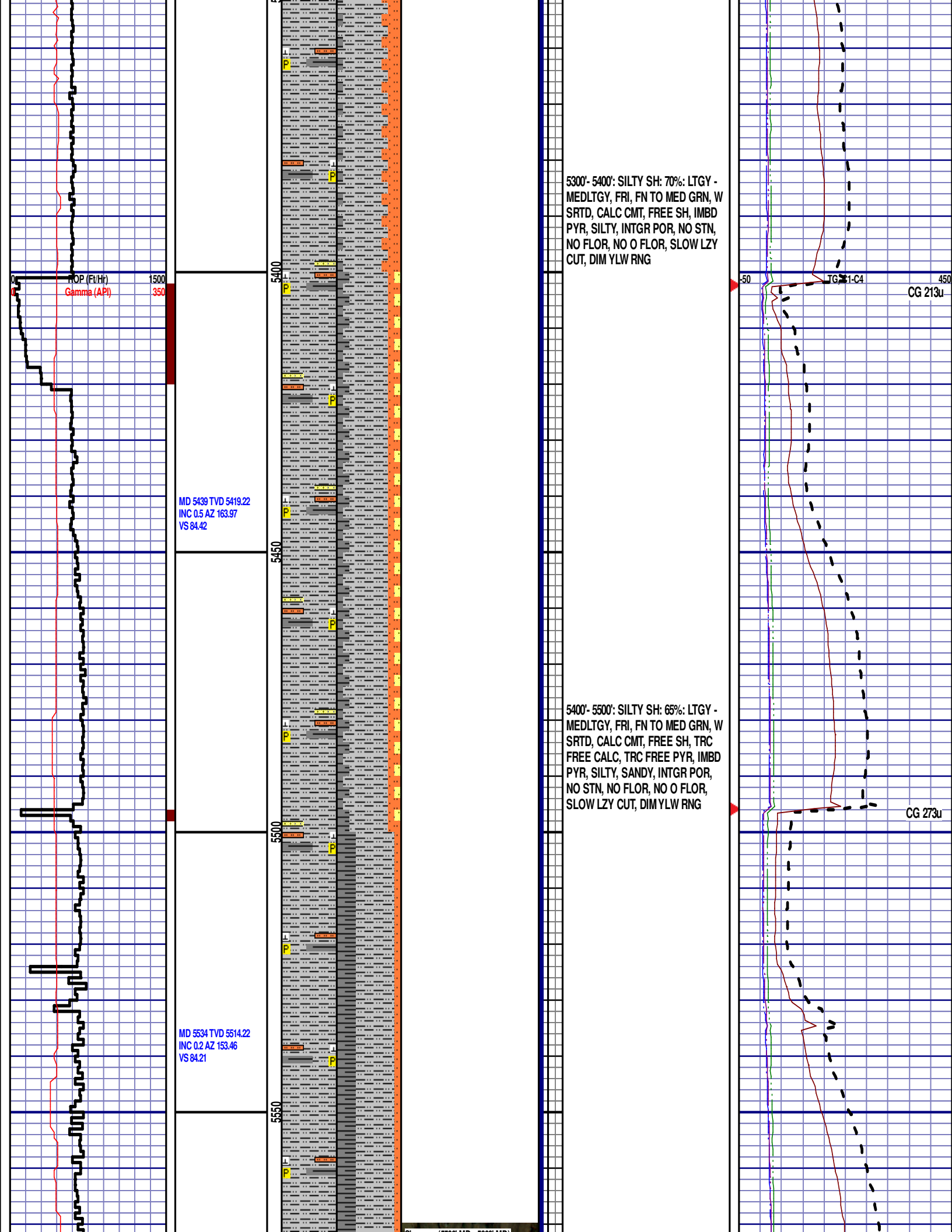
CG 407u

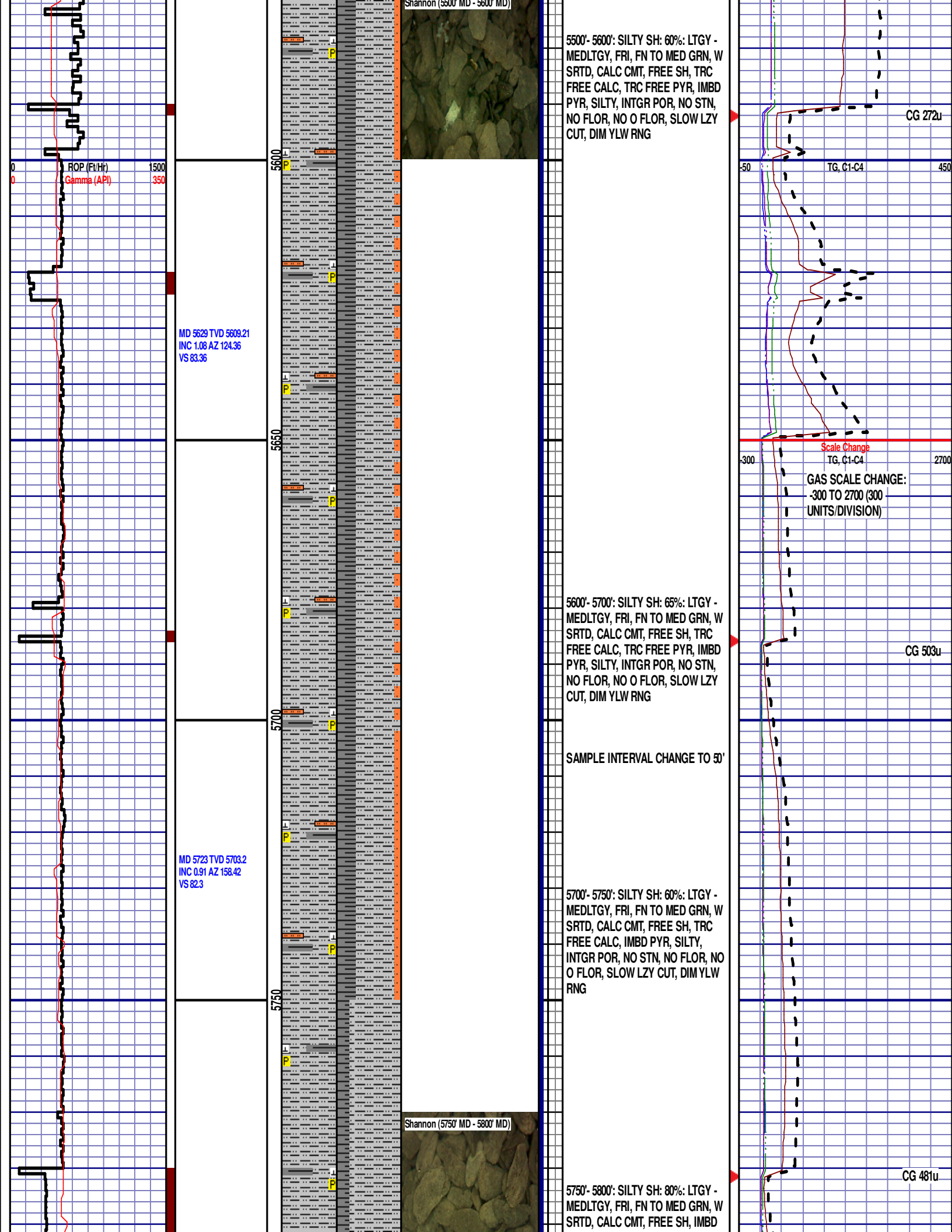


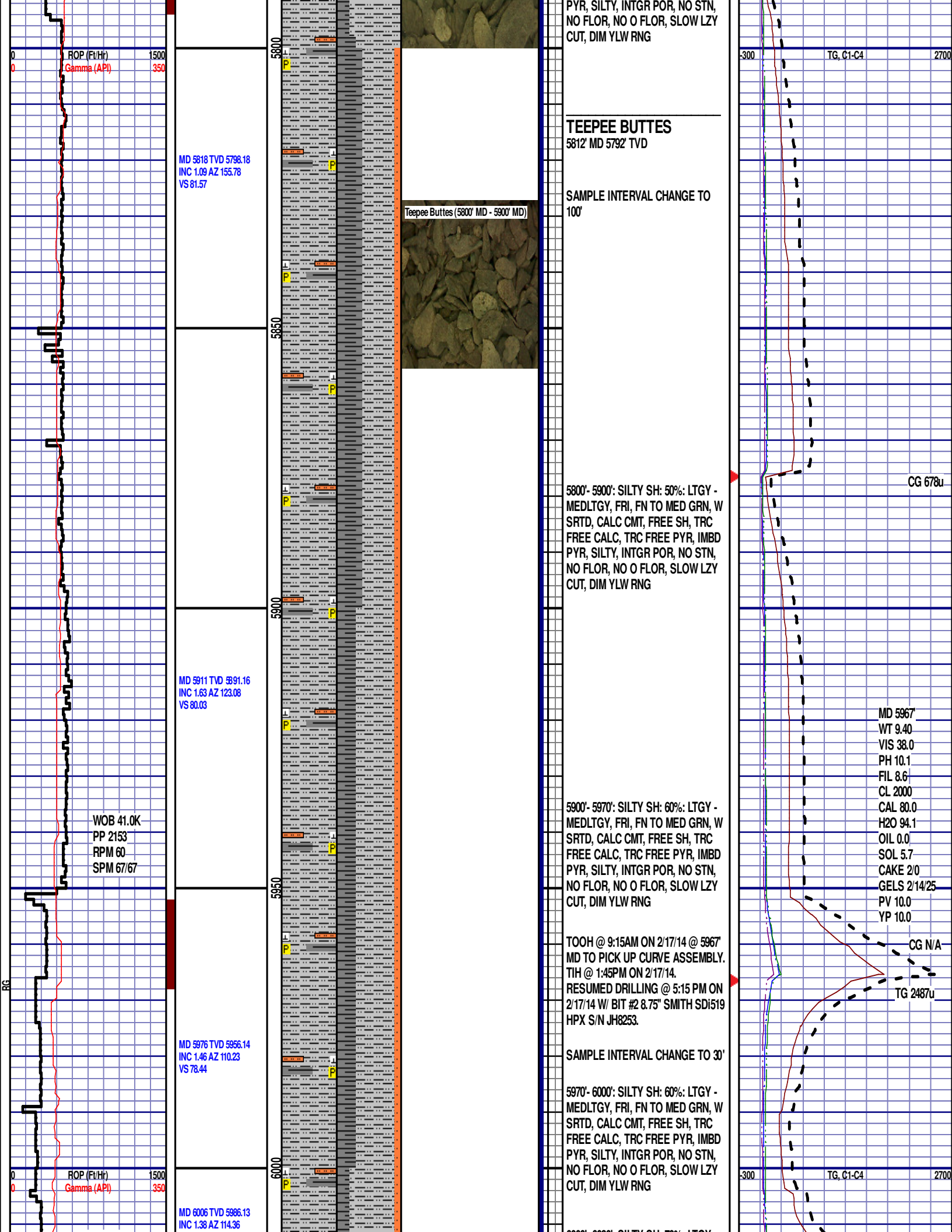












WOB 19.8K
PP 3124
RPM 30
SPM 67/67

VS 77.74

MD 6054 TVD 6034.1
INC 3.76 AZ 247.26
VS 78.62

MD 6101 TVD 6080.61
INC 12.1 AZ 258.84
VS 84.8

MD 6149 TVD 6127.32
INC 14.5 AZ 258.97
VS 95.52

MD 6196 TVD 6172.46
INC 17.75 AZ 262.13
VS 108.27

ROP (Ft/Hr)
Gamma (API)

1500
350

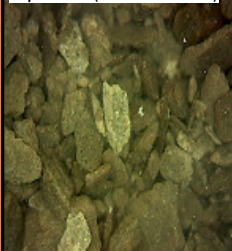
6050

6100

6150

6200

Teepee Buttes (6180' MD - 6210' MD)



6000'- 6030': SILTY SH: 70%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, TRC FREE PYR, IMBD
PYR, SILTY, INTGR POR, NO STN,
NO FLOR, NO O FLOR, SLOW LZ
CUT, DIM YLW RNG

6030'- 6060': SILTY SH: 70%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, TRC FREE PYR, IMBD
PYR, SILTY, INTGR POR, NO STN,
NO FLOR, NO O FLOR, SLOW LZ
CUT, DIM YLW RNG

6060'- 6090': SILTY SH: 60%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, TRC FREE PYR, IMBD
PYR, SILTY, INTGR POR, NO STN,
NO FLOR, NO O FLOR, SLOW LZ
CUT, DIM YLW RNG

6090'- 6120': SILTY SH: 70%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, TRC FREE PYR, IMBD
PYR, SILTY, INTGR POR, NO STN,
NO FLOR, NO O FLOR, SLOW LZ
CUT, DIM YLW RNG

6120'- 6150': SILTY SH: 60%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, TRC FREE PYR, IMBD
PYR, SILTY, INTGR POR, NO STN,
NO FLOR, NO O FLOR, SLOW LZ
CUT, DIM YLW RNG

6150'- 6180': SILTY SH: 70%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, TRC FREE PYR, IMBD
PYR, SILTY, INTGR POR, NO STN,
NO FLOR, NO O FLOR, SLOW LZ
CUT, DIM YLW RNG

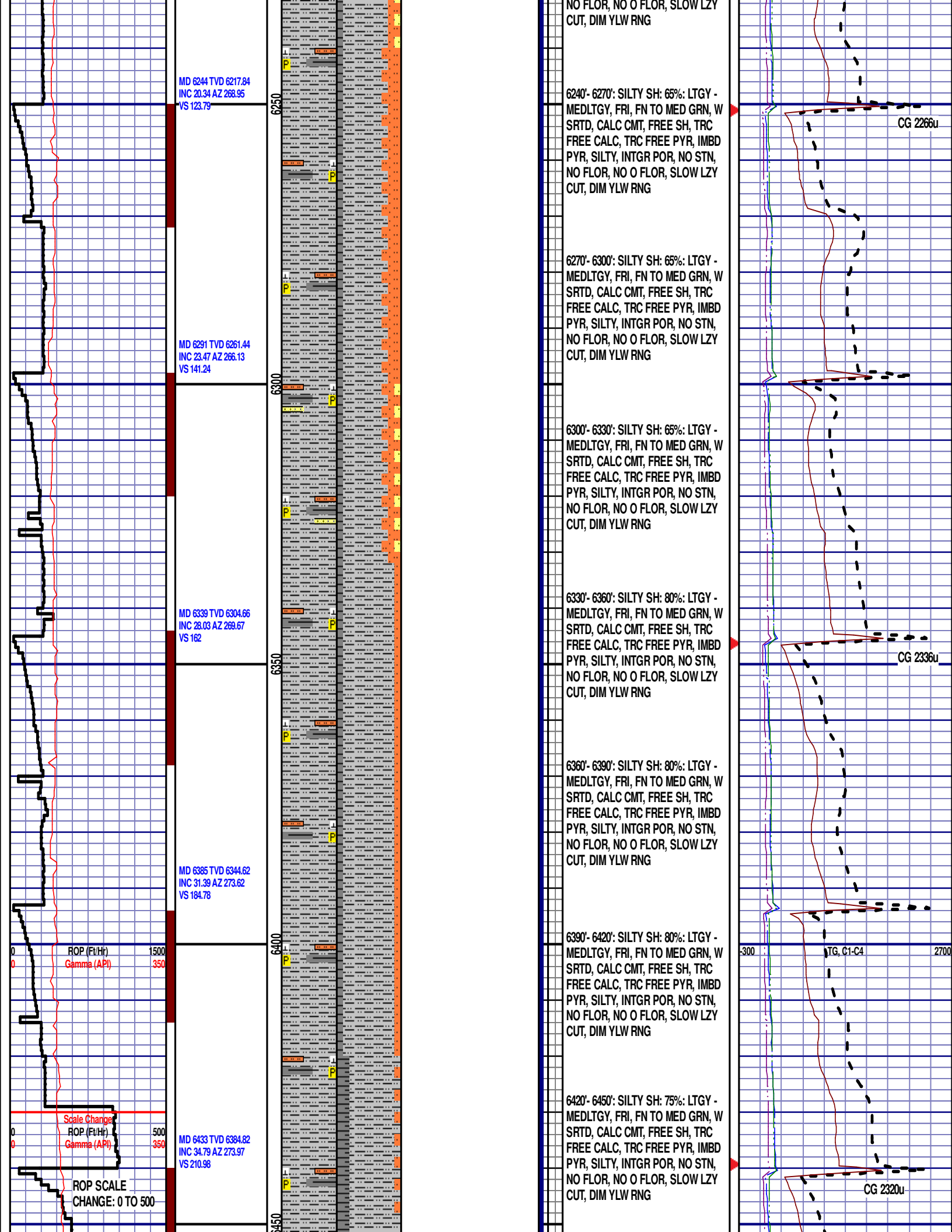
6180'- 6210': SILTY SH: 65%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, TRC FREE PYR, IMBD
PYR, SILTY, INTGR POR, NO STN,
NO FLOR, NO O FLOR, SLOW LZ
CUT, DIM YLW RNG

6210'- 6240': SILTY SH: 70%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, TRC FREE PYR, IMBD
PYR, SILTY, INTGR POR, NO STN,

CG 3018u

CG 2340u

TG, C1-C4



MD 6480 TVD 6422.38
INC 39.09 AZ 273.21
VS 239.22

MD 6528 TVD 6458.22
INC 44.26 AZ 272.61
VS 271.12

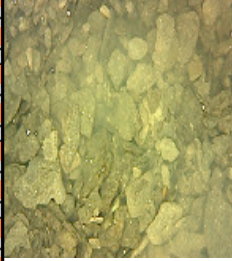
MD 6575 TVD 6490.05
INC 50.44 AZ 271.77
VS 305.67

MD 6623 TVD 6519.37
INC 54.24 AZ 271.35
VS 343.65

WOB 21.4K
PP 3775
RPM 20
SPM 67/67

12:01 AM
2/18/14
2375 FT/24 HRS
DAY 03

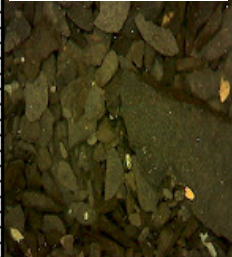
Teepee Buttes (6480' MD - 6510' MD)



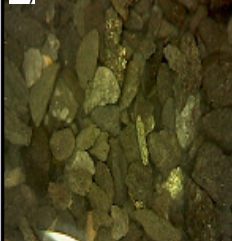
Teepee Buttes (6480' MD - 6510' MD)



Sharon Springs (6570' MD - 6600' MD)



Niobrara A Chalk (6600' MD - 6630' MD)



6450'- 6480': SILTY SH: 80%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, TRC FREE PYR, IMBD
PYR, SILTY, INTGR POR, NO STN,
NO FLOR, NO O FLOR, SLOW LZ
CUT, DIM YLW RNG

6480'- 6510': SILTY SH: 85%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, FREE PYR, IMBD PYR,
SILTY, INTGR POR, NO STN, NO
FLOR, NO O FLOR, SLOW STRMG
CUT, DIM YLW RNG

6510'- 6540': SILTY SH: 85%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, FREE PYR & BENT,
IMBD PYR, SILTY, INTGR POR, NO
STN, NO FLOR, NO O FLOR, SLOW
STRMG CUT, DIM YLW RNG

6540'- 6570': SILTY SH: 60%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, FREE PYR, ABNT
FREE BENT, IMBD PYR, SILTY,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, SLOW STRMG CUT, DIM
YLW RNG

SHARON SPRINGS

6568' MD 6485' TVD

6570'- 6600': SILTY SH: 65%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, FREE SH, TRC
FREE CALC, FREE PYR & BENT,
IMBD PYR, SILTY, INTGR POR, NO
STN, NO FLOR, NO O FLOR, IMMED
STRMG CUT, DIM YLW RNG

6600'- 6630': CHK: 60% MEDDRKY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
TRC FREE BENT, FREE PYR, 40%
FREE MRL, NO STN, 5% FLOR, NO
O FLOR, IMMED STRMG CUT, BRIYL
RNG

NIOBRARA A CHALK

6629' MD 6523' TVD

6630'- 6660': CHK: 80% MEDDRKY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
TRC FREE BENT, FREE PYR, 20%
FREE MRL, NO STN, 5% FLOR, NO
O FLOR, IMMED STRMG CUT, BRIYL
RNG

GAS SCALE
CHANGE: -350 TO
3150 (350
UNITS/DIVISION)

Scale Change
TG, C1-C4

CG 2571u

TG, C1-C4

CG 2846u

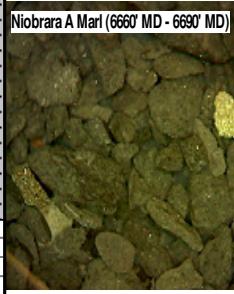
WOB 23.8K
PP 3842
RPM 20
SPM 67/67

MD 6670 TVD 6646.14
INC 56.32 AZ 271.77
VS 382.27

6700

50

Niobrara A Marl (6660' MD - 6690' MD)



NIOBRARA A MARL

6677' MD 6550' TVD

6660'-6690': MRST: 60% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD PYR, FREE BENT, 40% FREE
CHK, NO STN, 5% FLOR, NO O
FLOR, IMMED STRMG CUT, BRIYL
RNG

END OF VERTICAL LOG @ 6700' MD
ON 2/18/14. CONTINUED ON
HORIZONTAL LOG.