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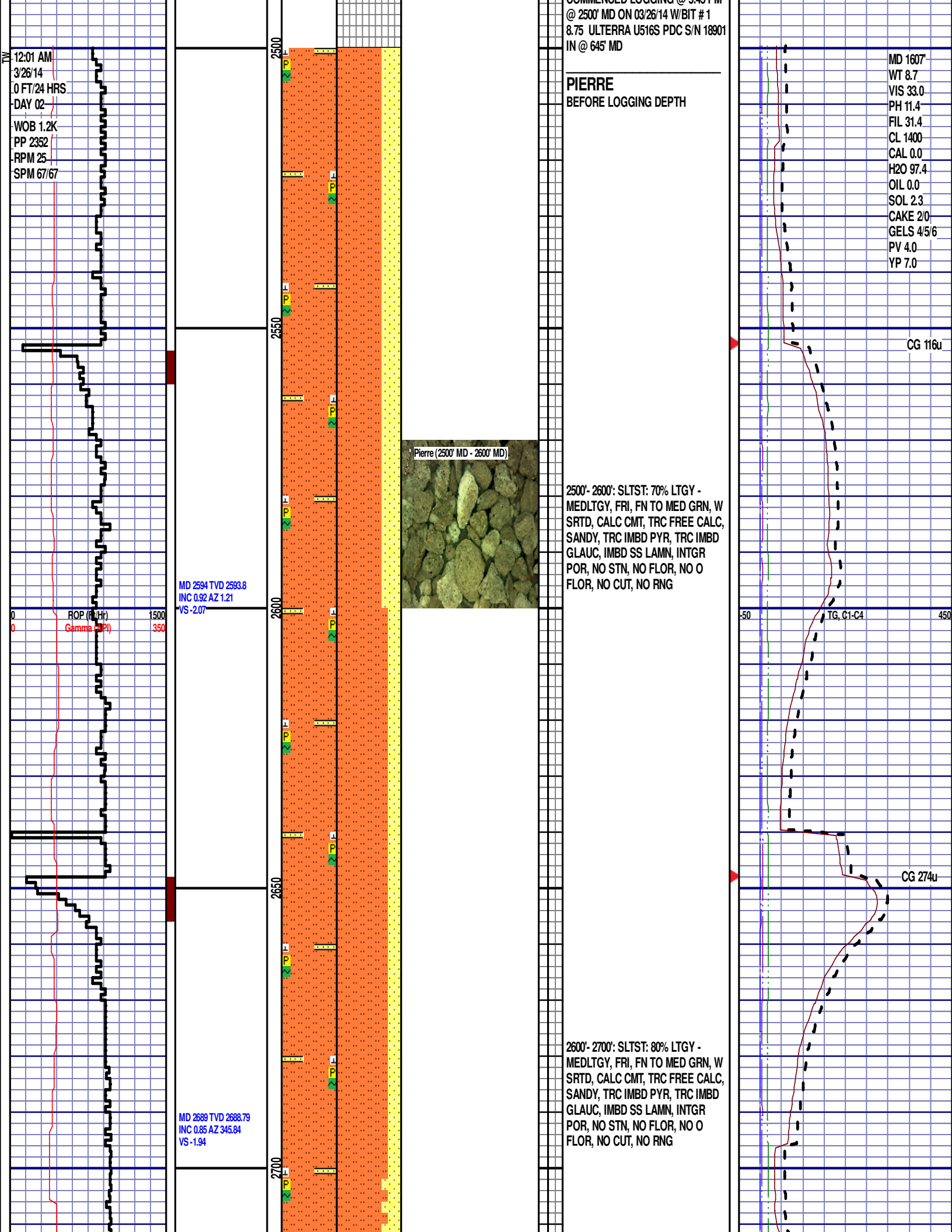
WWW.HZMUD.COM/25

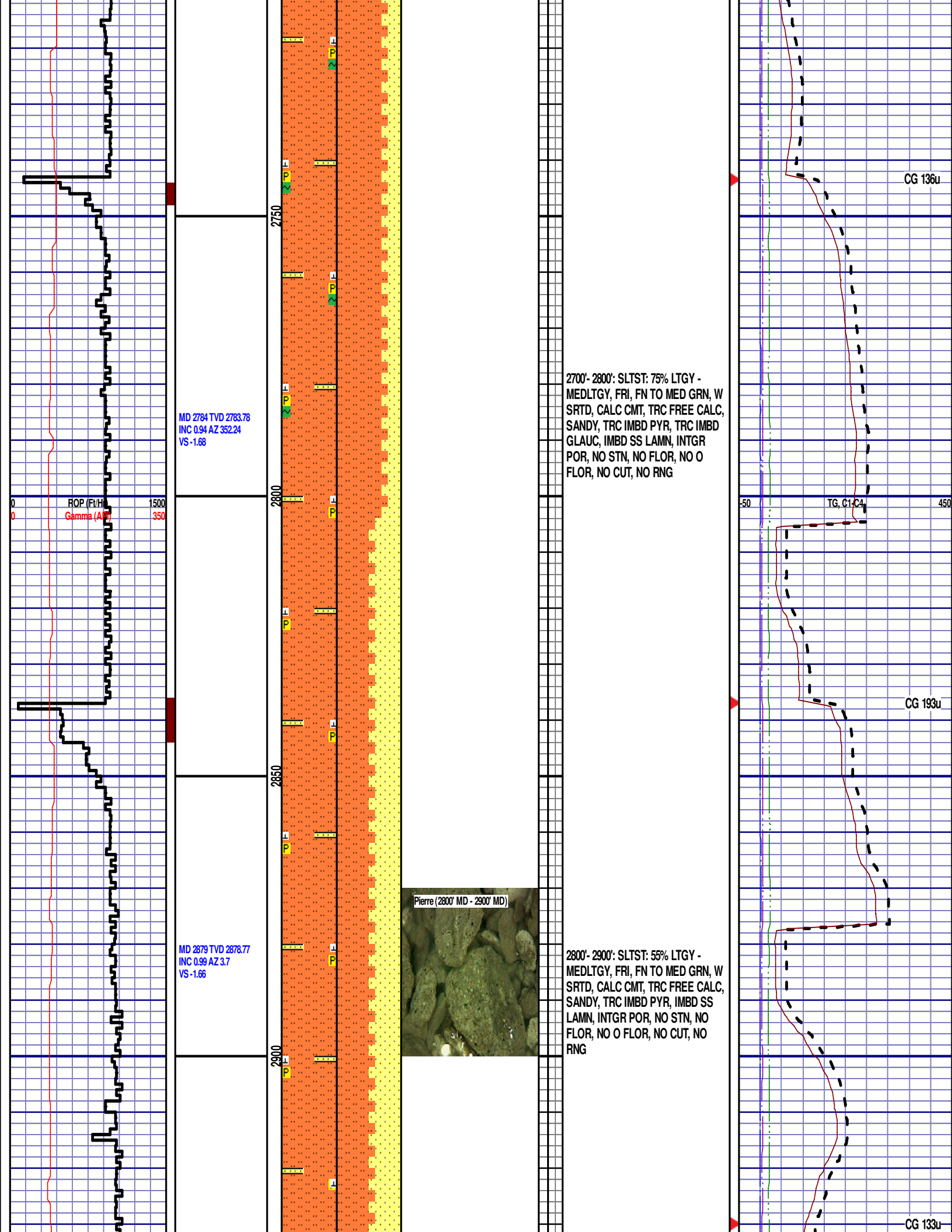
Customer Information	Well Information
<p>Operator: Noble Energy 1625 Broadway Suite 2200 Denver, Colorado 80202</p> <p>Geologist: Holly Duncan Noble Energy Inc.</p>	<p>Well Name: Wells Ranch AE30-64HNC</p> <p>Location: 29-T6N-R62W 1903' FSL, 65' FWL</p> <p>County: Weld State: Colorado</p>
Mud Logging Details	
<p>Logger: Hannah Blatchford & Thomas Wacholz</p> <p>Log Interval: 2500' MD to 6700' MD</p> <p>Start Date: March 25, 2014</p> <p>Release Date: March 31, 2014</p>	<p>Drilling Rig: H&P 321</p> <p>Total Depth: 12099' MD</p> <p>TD Date: March 31, 2014</p> <p>Formation: Niobrara C Chalk</p> <p>KB Elevation: 4787'</p> <p>GR Elevation: 4757'</p> <p>API Number: 05-123-38642-0000</p>

ROCK TYPES

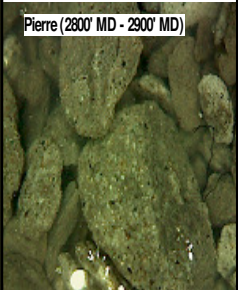
	Siltysh		Congl		Mrlst		Till		sdylgw
	Anhy		Dol		Salt		gw		hvycrbsh
	Bent		Gyp		Shale		lmywash		nosmpl
	Brec		Igne		Shcol		ogw		Lsdetrst
	Cht		Lmst		Shgy		olmywash		sltst
	Clyst		Meta		Sltst		oshly gw		sdy sh
	Coal		Chk		Ss		shly gw		

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 1500 350	0 1500 350		24					NOBLE ENERGY WELLS RANCH AE30-64HNC 29-T6N-R62W 1903' FSL, 65' FWL WELD COUNTY, CO H&P 321 LOGGERS: HANNAH BLATCHFORD THOMAS WACHOLZ CALLED OUT BY COMPANY MAN 3/25/14 COMMENCED LOGGING @ 5:45 PM	50 450	TG, C1-C4
SLIDE=RED ROTATE=WHITE										
ROP SCALE: 0 TO 1500 (FT/HR)										
GAMMA SCALE: 0 TO 350 (GAMMA DATA AS RECEIVED)										
									CONNECTIONS ARE MARKED WITH RED TRIANGLES	
									GAS SCALE: -50 TO 450 50 UNITS/DIVISION	
									DRILLING ON WATER-BASED MUD	

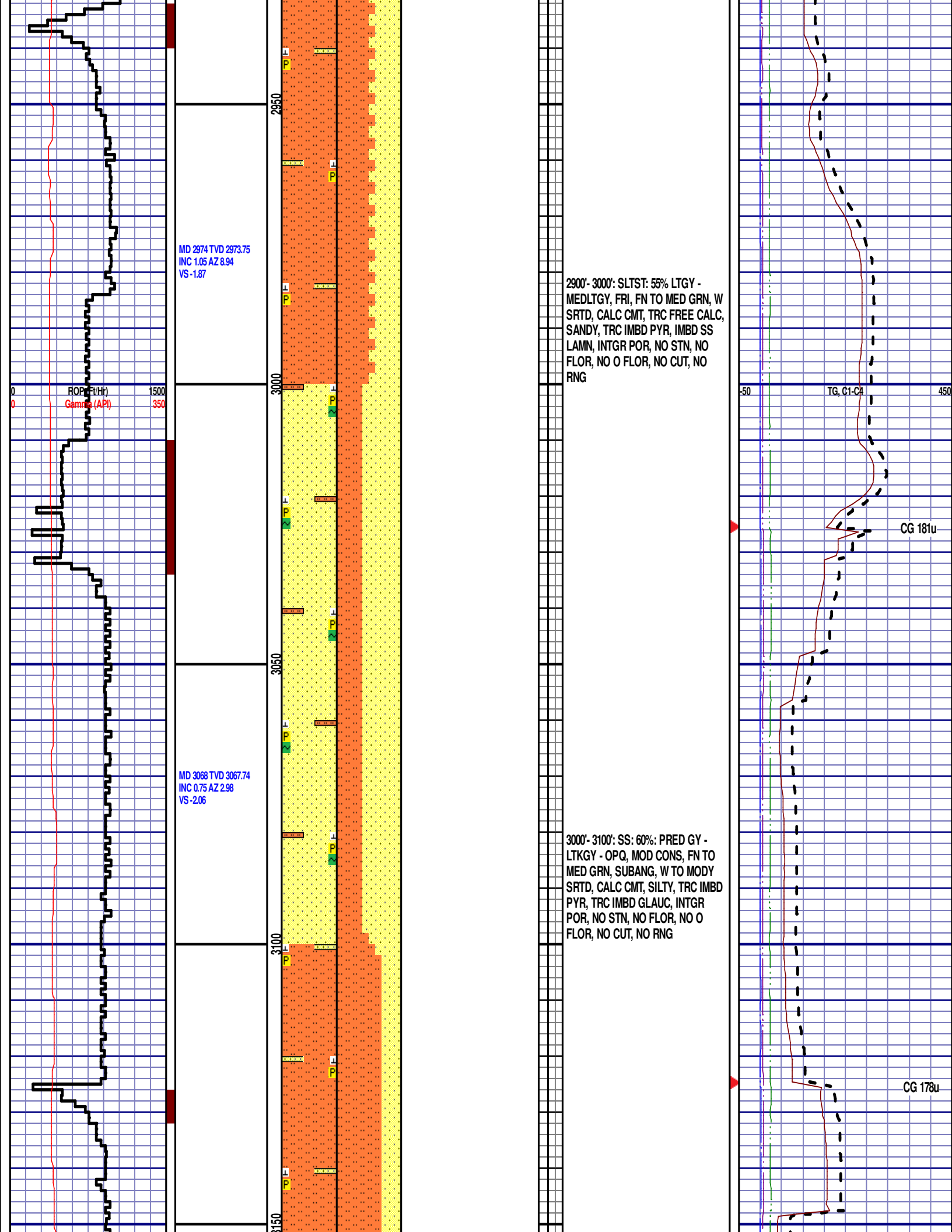




2700'- 2800': SLTST: 75% LTGY - MEDLTGY, FRI, FN TO MED GRN, W SRTD, CALC CMT, TRC FREE CALC, SANDY, TRC IMBD PYR, TRC IMBD GLAUC, IMBD SS LAMN, INTGR POR, NO STN, NO FLOR, NO O FLOR, NO CUT, NO RNG



2800'- 2900': SLTST: 55% LTGY - MEDLTGY, FRI, FN TO MED GRN, W SRTD, CALC CMT, TRC FREE CALC, SANDY, TRC IMBD PYR, IMBD SS LAMN, INTGR POR, NO STN, NO FLOR, NO O FLOR, NO CUT, NO RNG



MD 3163 TVD 3162.73
INC 0.62 AZ 9.54
VS -2.2

ROP (Feet)
Gamma (API)

1500
350

MD 3258 TVD 3257.73
INC 0.51 AZ 24.01
VS -2.47

MD 3352 TVD 3351.73
INC 0.22 AZ 244.98
VS -2.48

3200

3250

3300

3350

Pierre (3100' MD - 3200' MD)



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

3200'- 3300': SLTST: 65% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
SANDY, TRC IMBD PYR, IMBD SS
LAMN, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

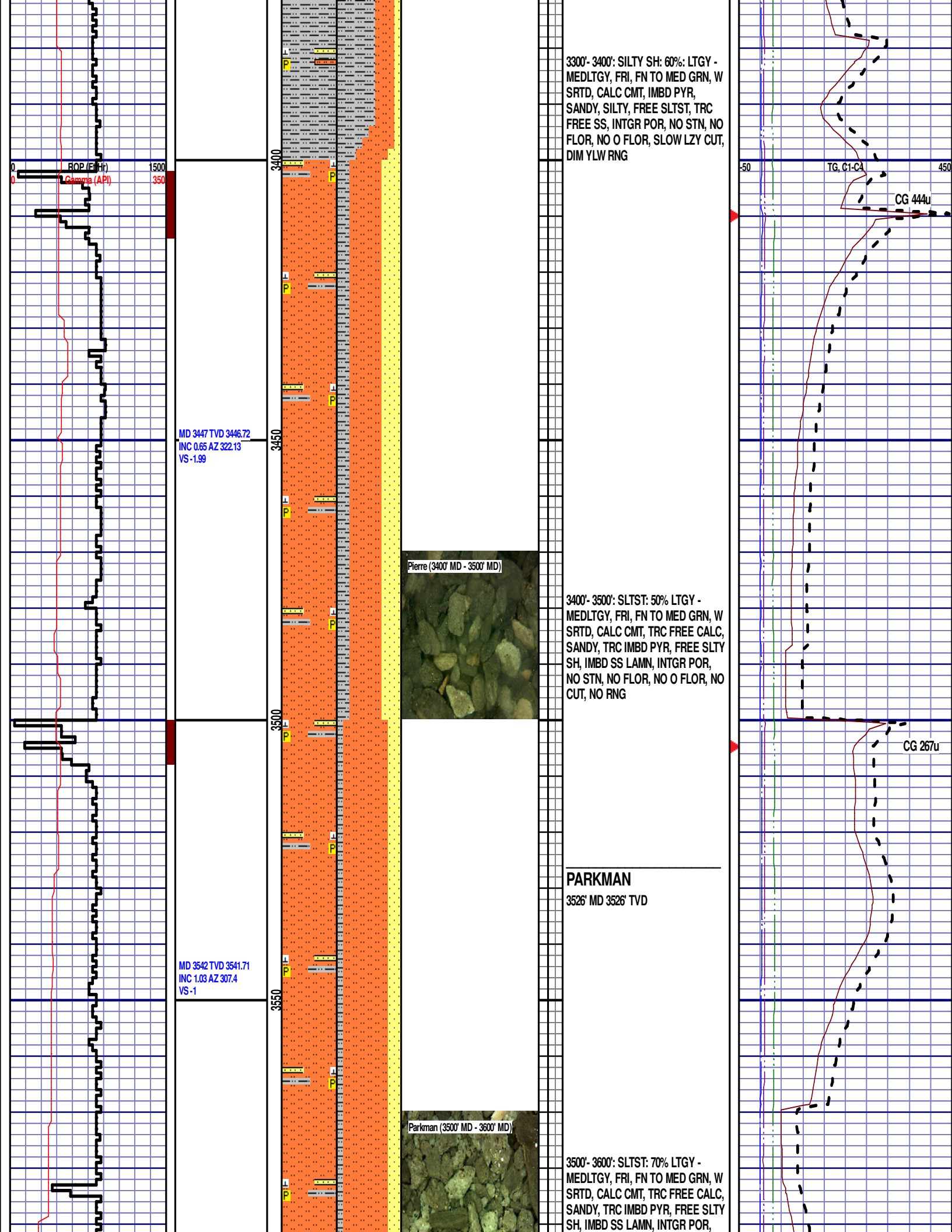
-50

TG, C1-C4

450

CG 165u

CG 230u



3300'- 3400': SILTY SH: 60% LTGY - MEDLTGY, FRI, FN TO MED GRN, W SRTD, CALC CMT, IMBD PYR, SANDY, SILTY, FREE SLTST, TRC FREE SS, INTGR POR, NO STN, NO FLOR, NO O FLOR, SLOW LZY CUT, DIM YLW RNG

MD 3447 TVD 3446.72
INC 0.65 AZ 322.13
VS -1.99

Pierre (3400' MD - 3500' MD)

3400'- 3500': SLTST: 50% LTGY - MEDLTGY, FRI, FN TO MED GRN, W SRTD, CALC CMT, TRC FREE CALC, SANDY, TRC IMBD PYR, FREE SLTY SH, IMBD SS LAMN, INTGR POR, NO STN, NO FLOR, NO O FLOR, NO CUT, NO RNG

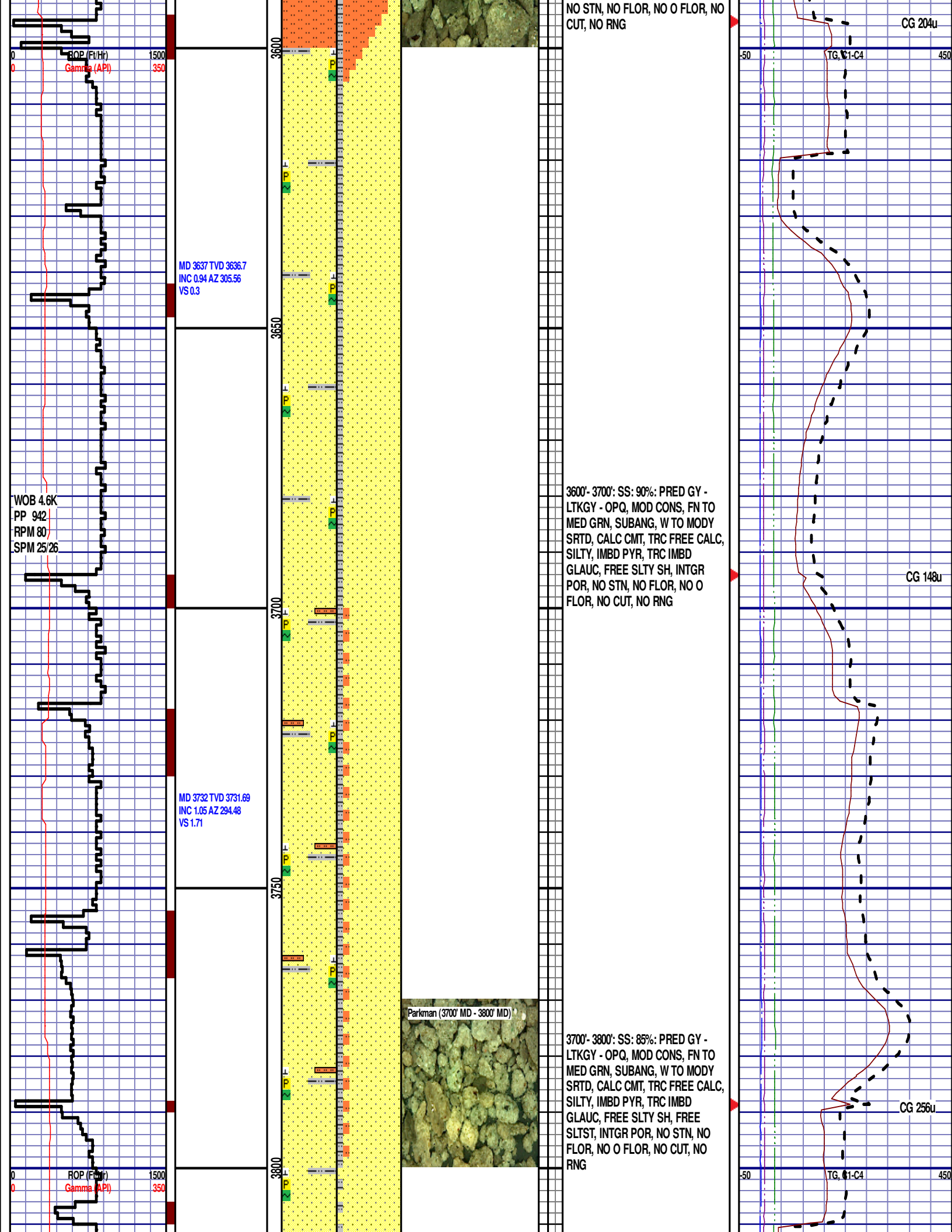
MD 3542 TVD 3541.71
INC 1.03 AZ 307.4
VS -1

Parkman (3500' MD - 3600' MD)

PARKMAN

3526' MD 3526' TVD

3500'- 3600': SLTST: 70% LTGY - MEDLTGY, FRI, FN TO MED GRN, W SRTD, CALC CMT, TRC FREE CALC, SANDY, TRC IMBD PYR, FREE SLTY SH, IMBD SS LAMN, INTGR POR, NO STN, NO FLOR, NO O FLOR, NO CUT, NO RNG



MD 3827 TVD 3826.67
INC 1.23 AZ 298.08
VS 3.39

MD 3921 TVD 3920.66
INC 0.5 AZ 301.62
VS 4.62

MD 4016 TVD 4015.65
INC 0.84 AZ 225.9
VS 5.48

3800'- 3900': SS: 95%: PRED GY -
LTKGY - OPQ, MOD CONS, FN TO
MED GRN, SUBANG, W TO MODY
SRTD, CALC CMT, TRC FREE CALC,
SILTY, IMBD PYR, TRC IMBD
GLAUC, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

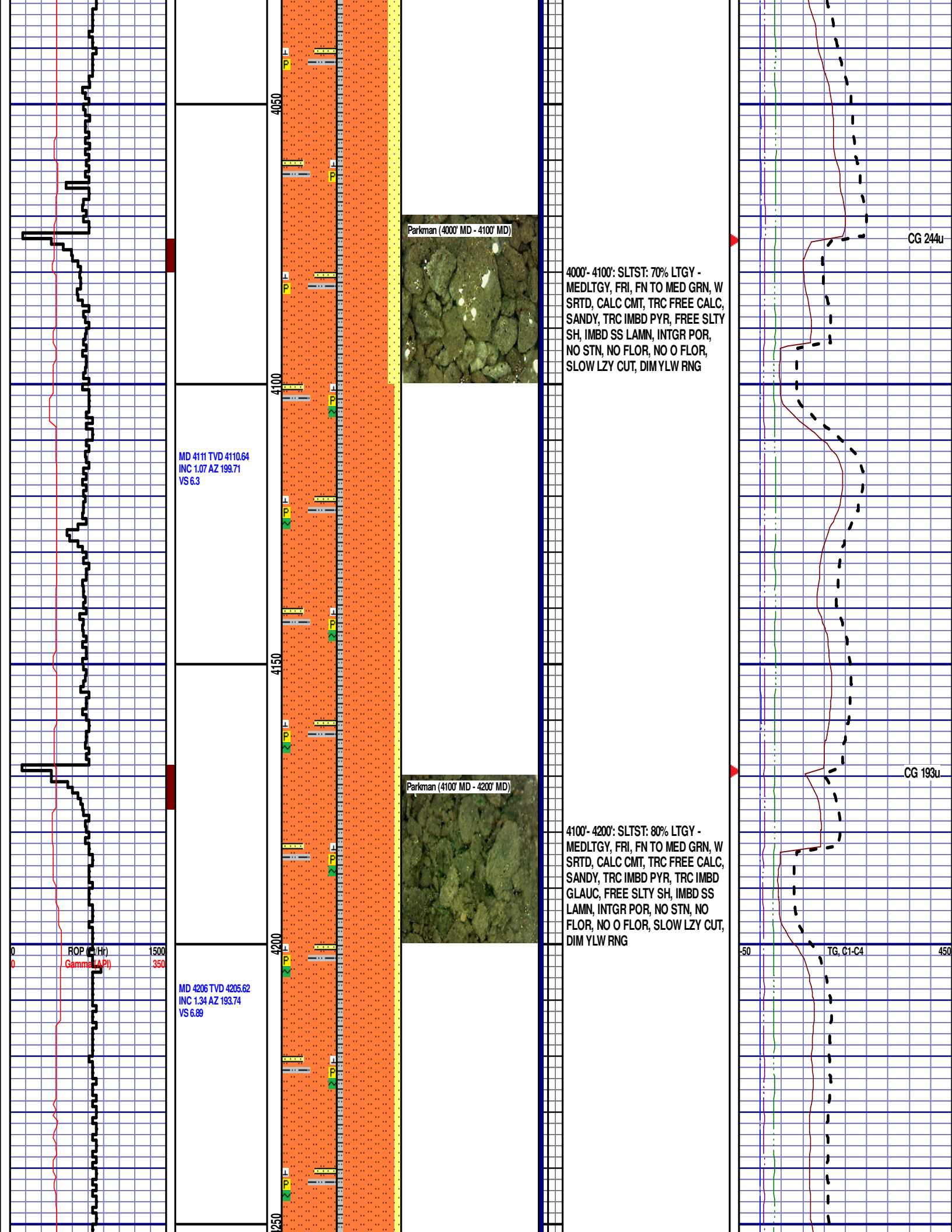
3900'- 4000': SLTST: 60% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
SANDY, TRC IMBD PYR, FREE SLTY
SH, IMBD SS LAMN, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
SLOW LZ Y CUT, DIM YLW RNG

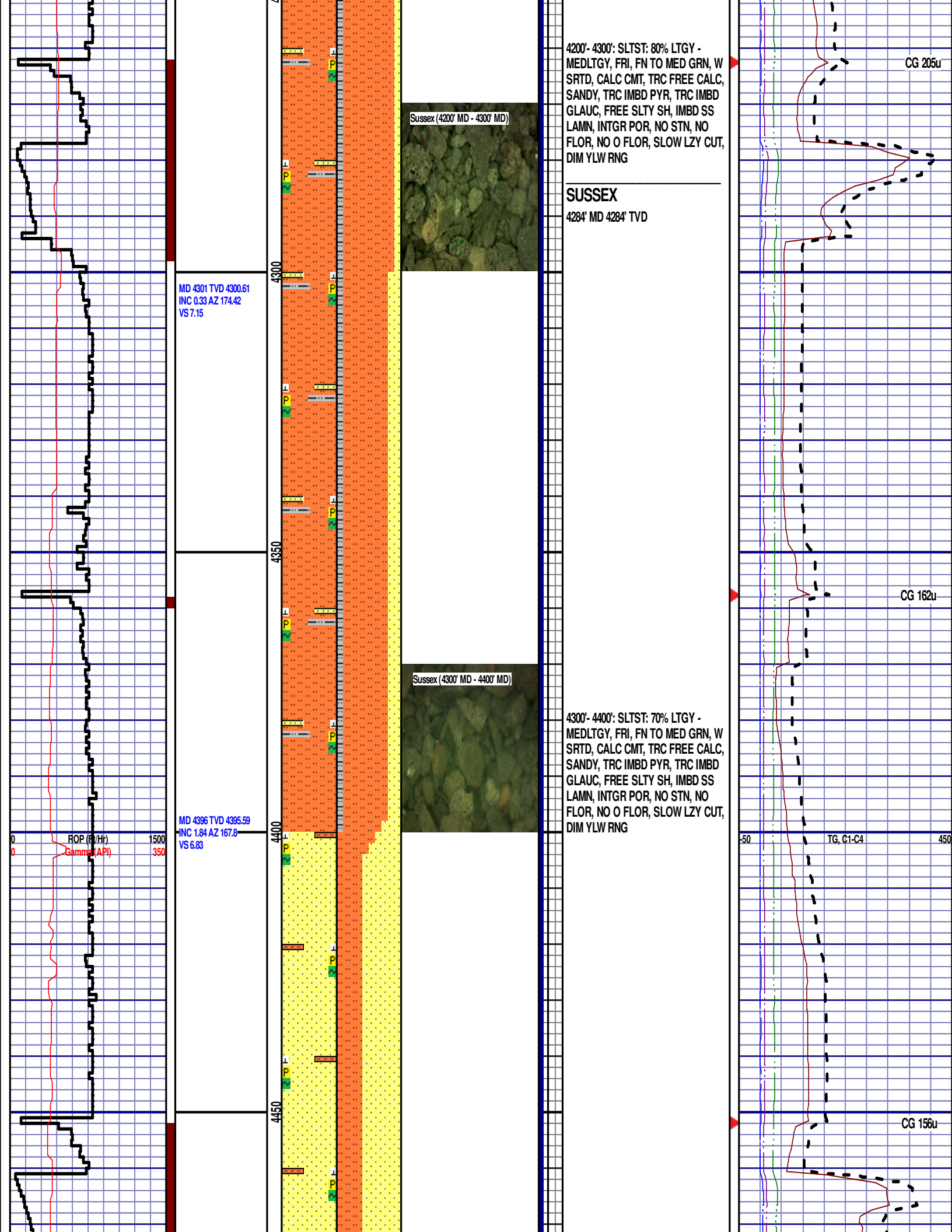
CG 100u

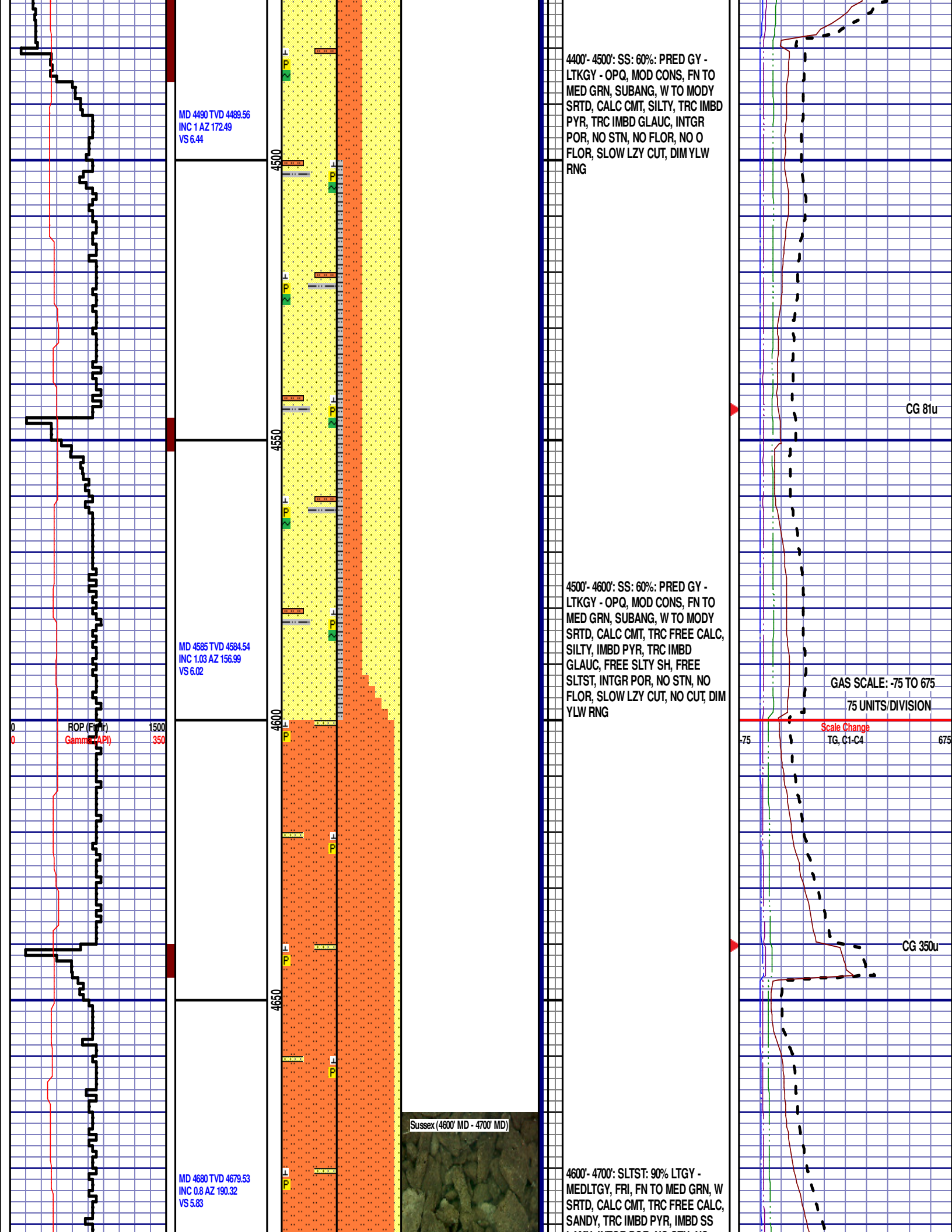
CG 109u

ROP (FTH)
Gamma (API)

TG, C1-C4







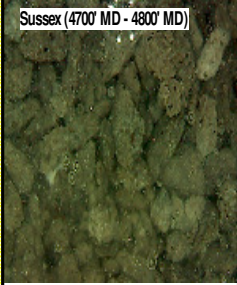
12:01 AM
3/27/14
2230 FT/24 HRS
DAY 03

WOB 29.5K
PP 3899
RPM 0
SPM 67/66

MD 4775 TVD 4774.52
INC 0.69 AZ 227.17
VS 6.39

ROP (ft/Hr)
Gamma (API)
1500
350

MD 4870 TVD 4869.51
INC 1.14 AZ 224.23
VS 7.48



4700'- 4800': SLTST: 80% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
SANDY, TRC IMBD PYR, IMBD SS
LAMN, INTGR POR, NO STN, NO
FLOR, NO O FLOR, SLOW LZY CUT,
DIM YLW RNG

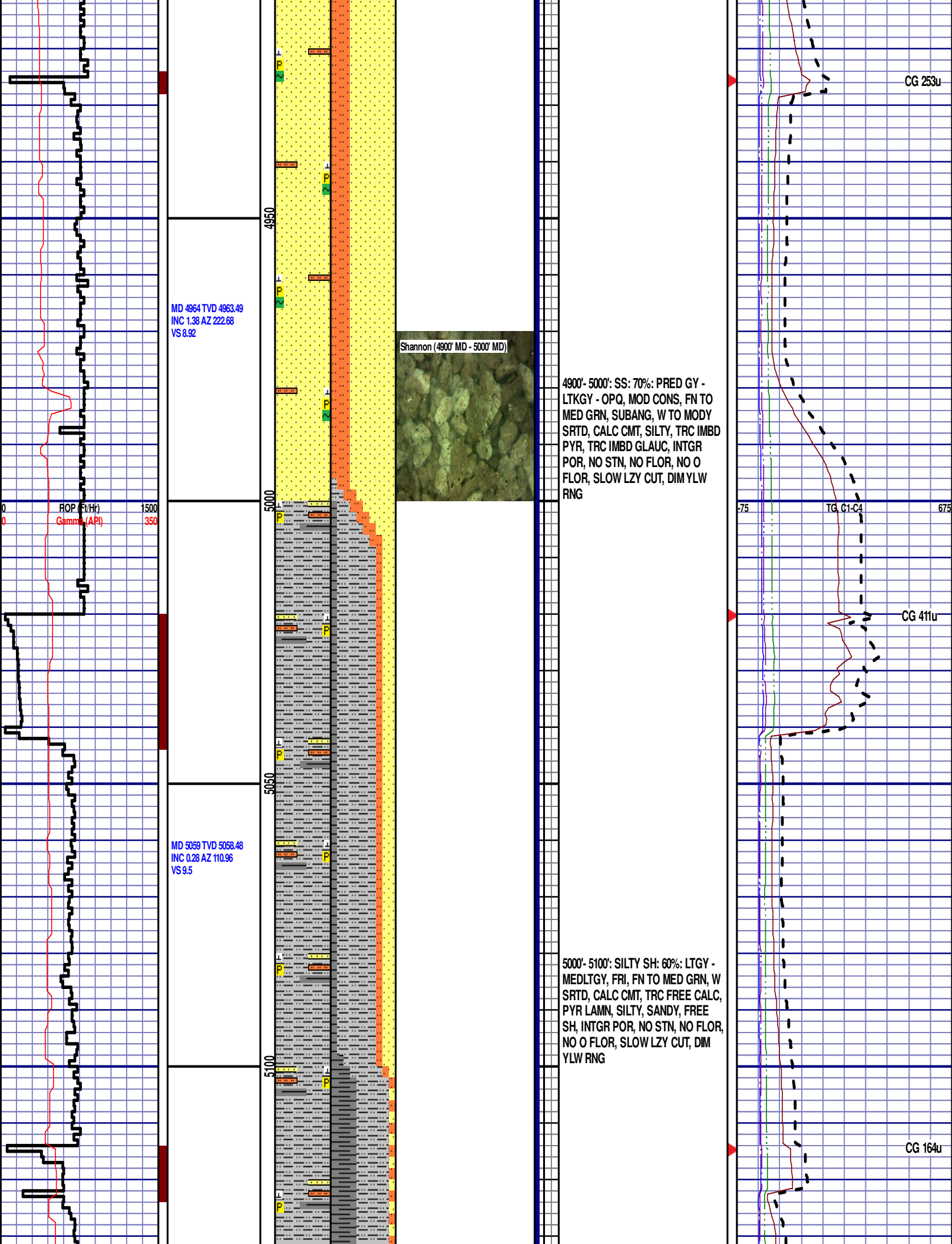
SHANNON

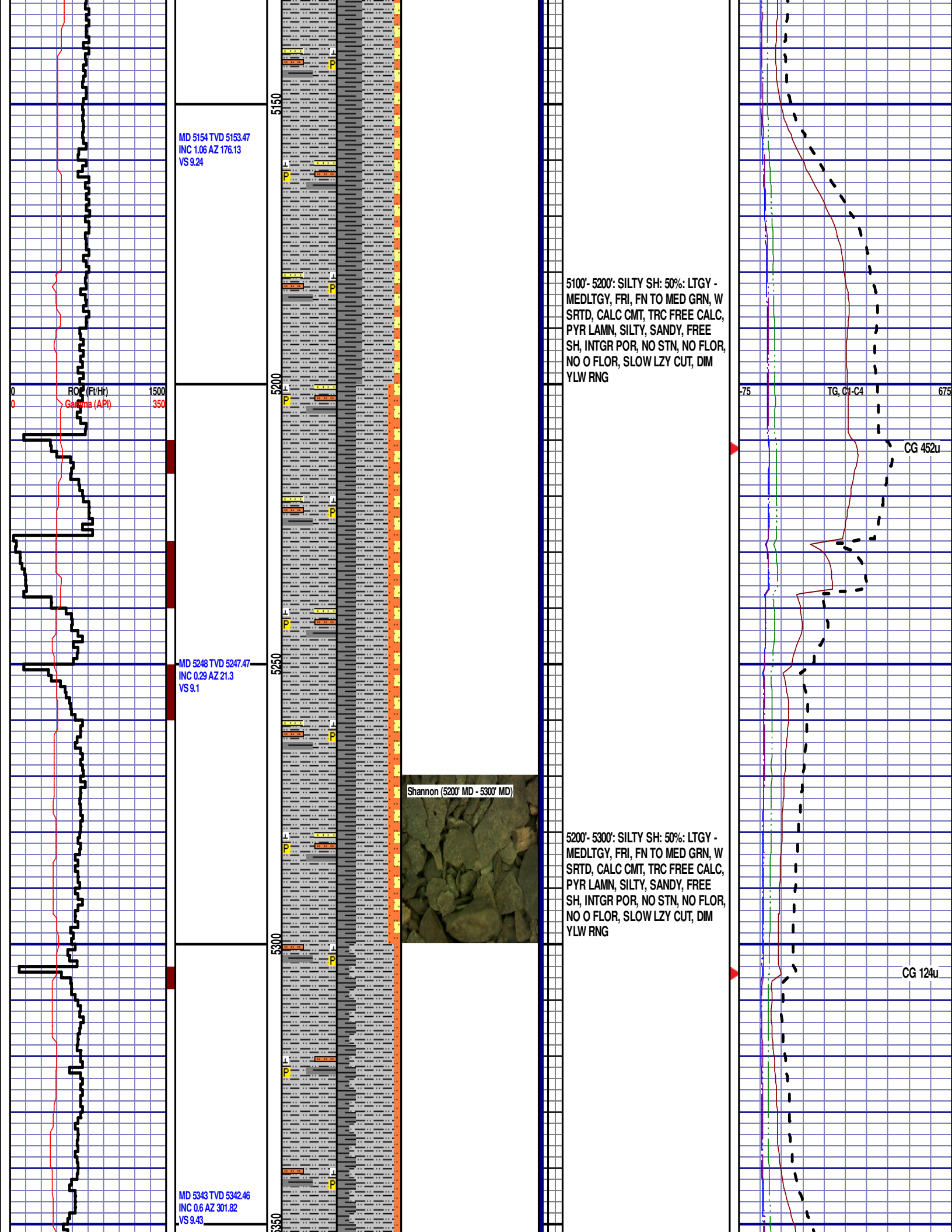
4813' MD 4813' TVD

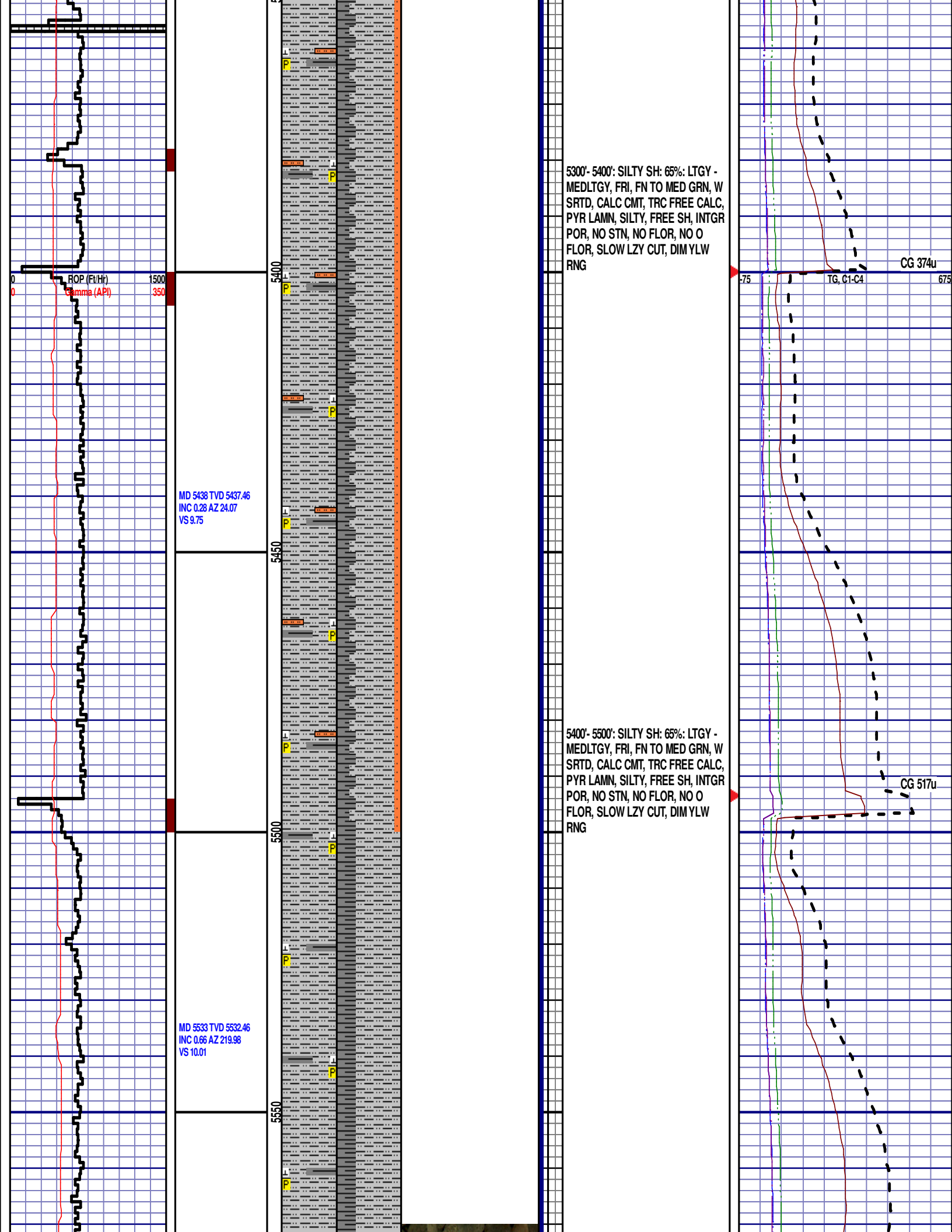
4800'- 4900': SLTST: 65% LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
SANDY, TRC IMBD PYR, TRC IMBD
GLAUC, IMBD SS LAMN, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, SLOW LZY CUT, DIM YLW
RNG

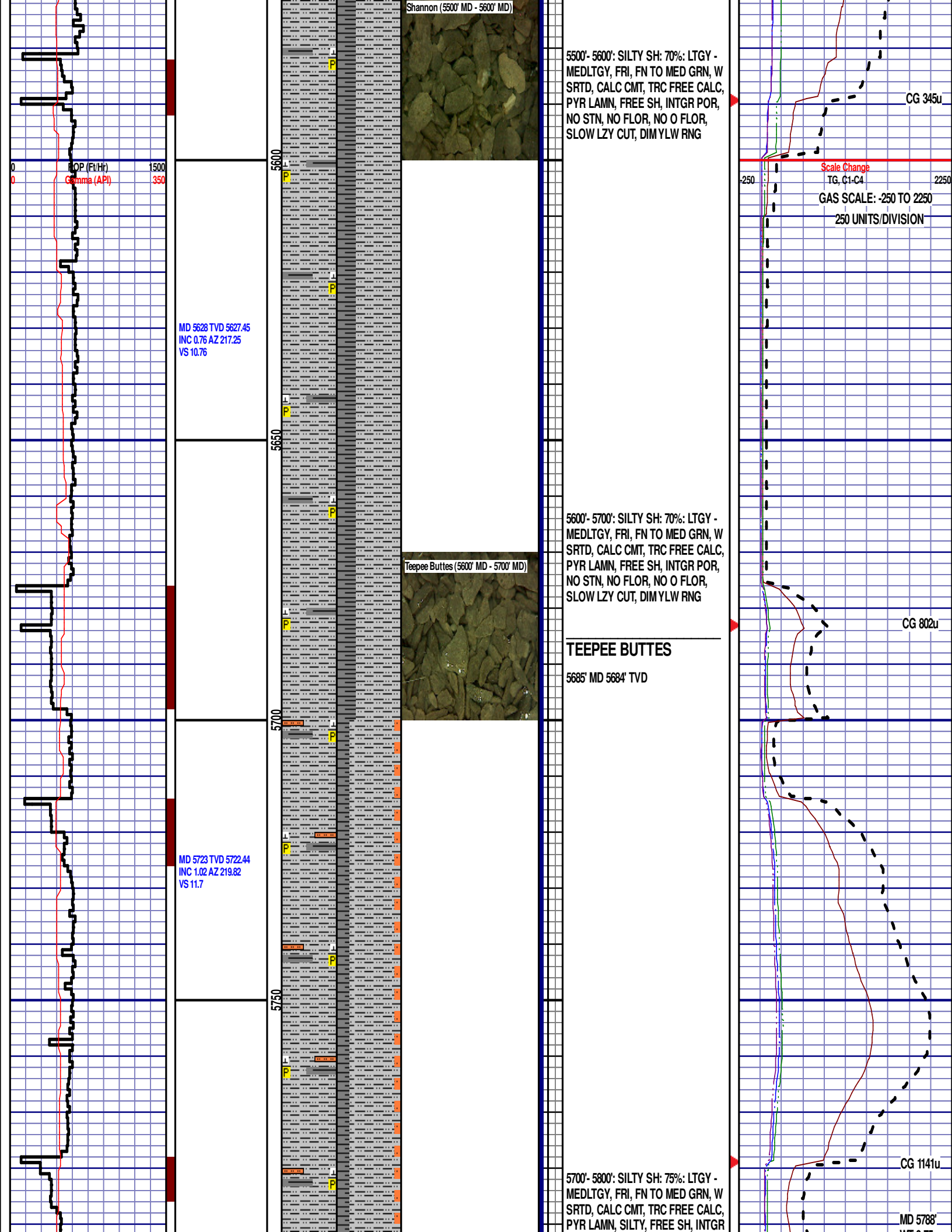
CG 429u

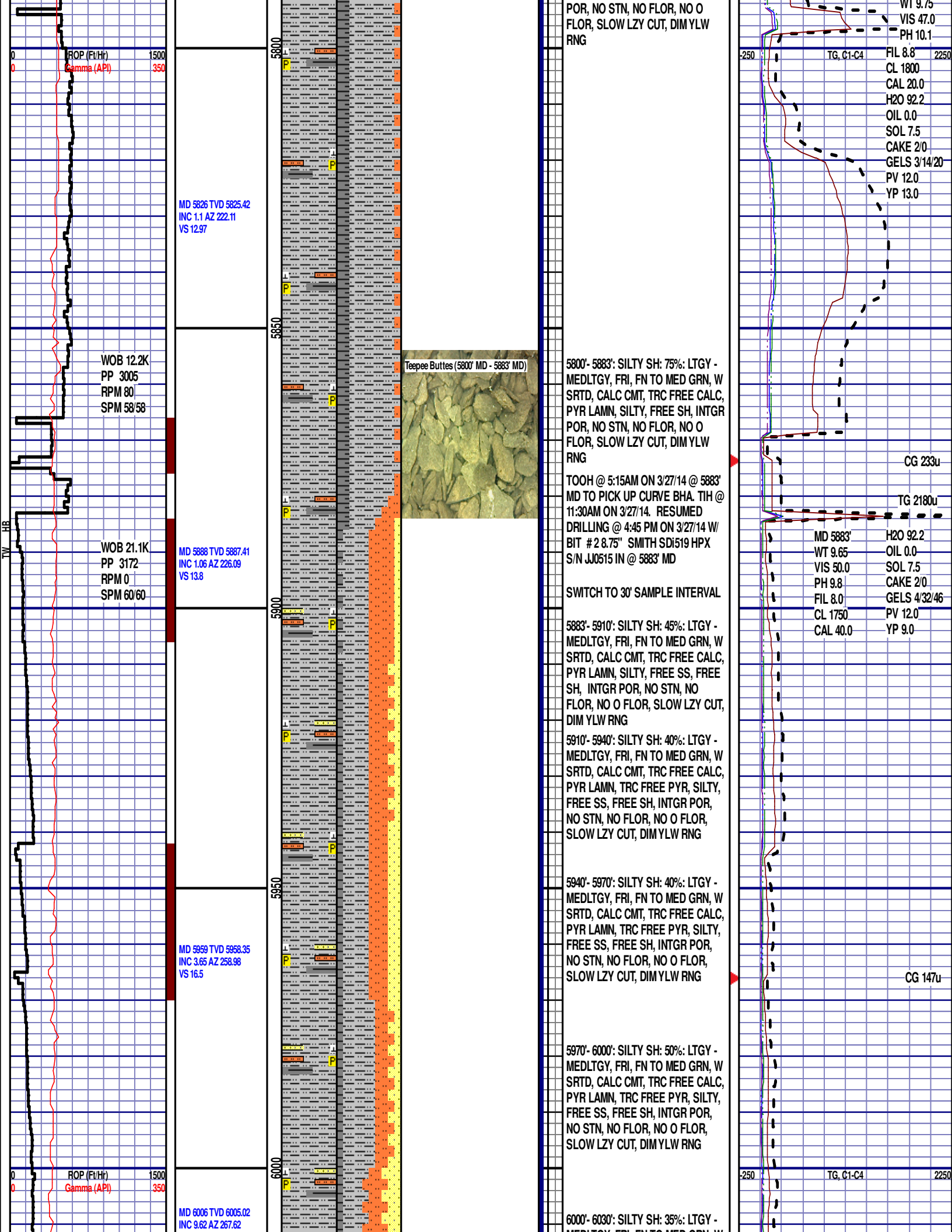
CG 257u











VS 21.91

MD 6054 TVD 6052.25
INC 10.85 AZ 271.16
VS 30.43

MD 6101 TVD 6098.17
INC 13.71 AZ 273.8
VS 40.4

MD 6149 TVD 6144.08
INC 20.06 AZ 274.21
VS 54.29

MD 6196 TVD 6187.28
INC 26.23 AZ 271.35
VS 72.71

ROP (Ft/Hr)
Gamma (API)

WOB 15.9K
PP 3395
RPM 0
SPM 66/67

6050

6100

6150

6200

Teepee Buttes (6150' MD - 6180' MD)



MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
PYR LAMN, TRC FREE PYR, SILTY,
FREE SS, FREE SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
SLOW LZY CUT, DIM YLW RNG

6030'- 6060': SILTY SH: 35%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
PYR LAMN, TRC FREE PYR, SILTY,
FREE SS, FREE SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
SLOW LZY CUT, DIM YLW RNG

6060'- 6090': SILTY SH: 55%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
PYR LAMN, TRC FREE PYR, SILTY,
FREE SS, FREE SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
IMMED STRMG CUT, BRIYL RNG

6090'- 6120': SILTY SH: 45%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
PYR LAMN, TRC FREE PYR, SILTY,
FREE SS, FREE SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
IMMED STRMG CUT, BRIYL RNG

6120'- 6150': SILTY SH: 45%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
PYR LAMN, TRC FREE PYR, SILTY,
FREE SS, FREE SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
IMMED STRMG CUT, BRIYL RNG

6150'- 6180': SILTY SH: 40%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
PYR LAMN, TRC FREE PYR, SILTY,
FREE SS, FREE SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
IMMED STRMG CUT, BRIYL RNG

6180'- 6210': SILTY SH: 45%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
PYR LAMN, TRC FREE PYR, SILTY,
FREE SS, FREE SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
IMMED STRMG CUT, BRIYL RNG

6210'- 6240': SILTY SH: 65%: LTGY -
MEDLTGY, FRI, FN TO MED GRN, W
SRTD, CALC CMT, TRC FREE CALC,
PYR LAMN, TRC FREE PYR, SILTY,
FREE SS, FREE SH, INTGR POR,

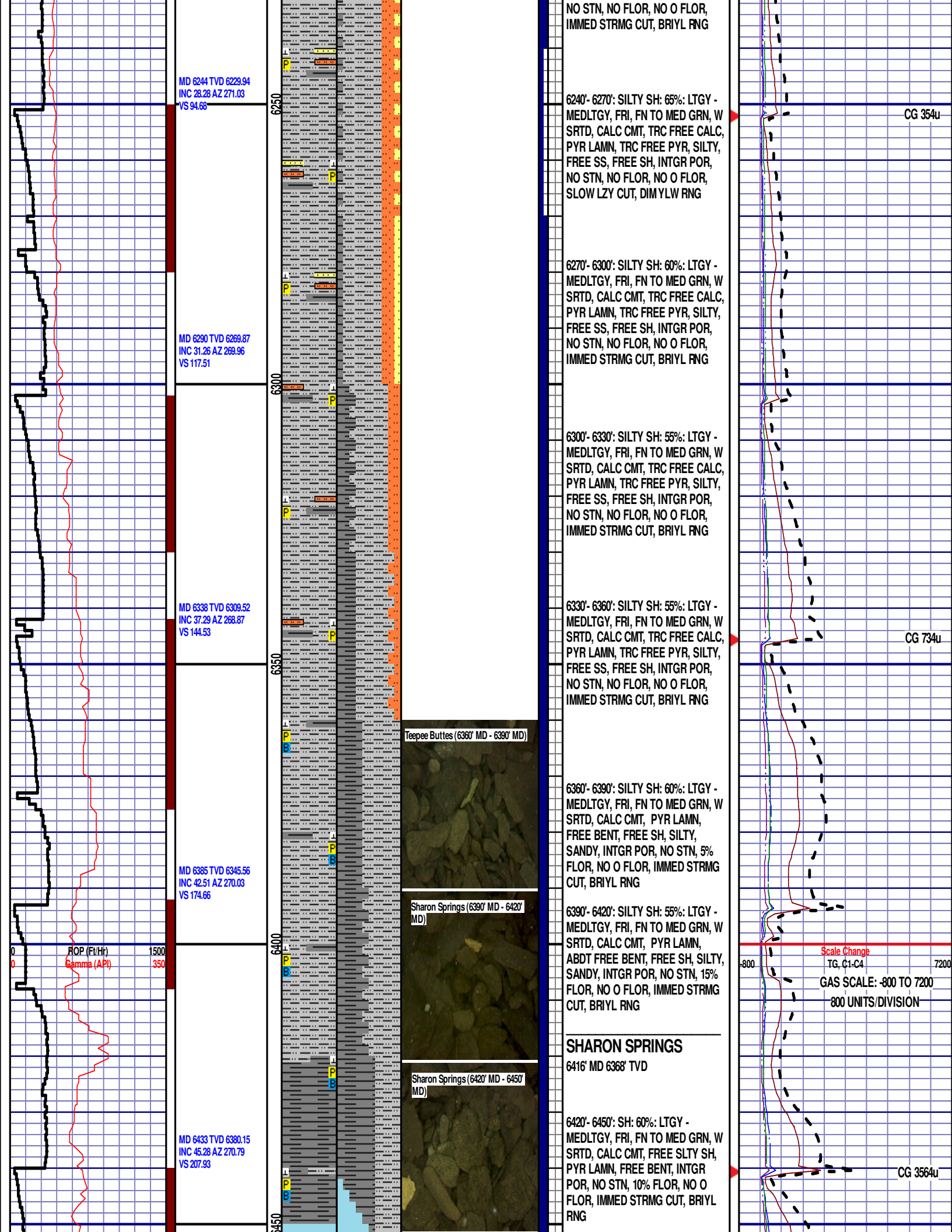
CG 208u

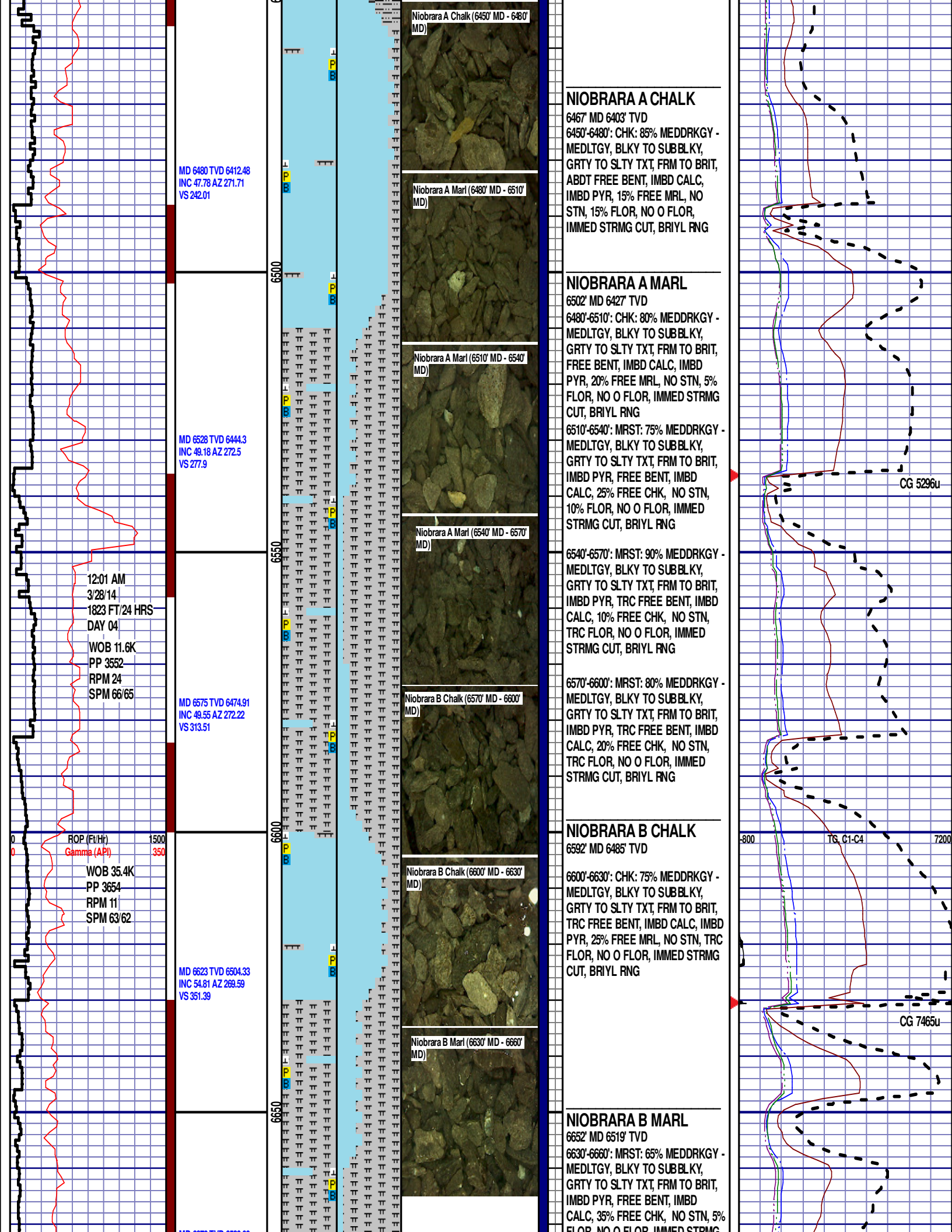
CG 298u

-250

TG, C1-C4

2250





MD 8670 IVD 6629.09
INC 61.58 AZ 268.01
VS 391.3

WOB 29.2K
PP 2885
RPM 0
SPM 0/109

6700

50

FLOO, NO O FLOO, IMMED STRMG
CUT, BRIYL RNG

6660'-6690': MRST: 90% MEDDRKGY -
MEDLTGY, BLKY TO SUBBLKY,
GRTY TO SLTY TXT, FRM TO BRIT,
IMBD PYR, FREE BENT, IMBD
CALC, 10% FREE CHK, NO STN, 5%
FLOR, NO O FLOR, IMMED STRMG
CUT, BRIYL RNG

END OF VERTICAL LOG @ 6700' MD
ON 3/28/14. CONTINUED ON
HORIZONTAL LOG.

