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WWW.HZMUD.COM/25

Customer Information	Well Information
<p>Operator: Noble Energy Inc 1625 Broadway Suite 2200 Denver, Colorado 80202</p> <p>Geologist: Holly Duncan Noble Energy Inc.</p>	<p>Well Name: NCLP AA06-66-1BHNA</p> <p>Location: 4-T6N-R63W 2310' FNL, 100' FWL</p> <p>County: Weld State: Colorado</p>
Mud Logging Details	
<p>Logger: Andrew Christiano & Sam Stelzer</p> <p>Log Interval: 2500' MD to 6700' MD</p> <p>Start Date: June 12, 2014</p> <p>Release Date: June 20, 2014</p>	<p>Drilling Rig: H&P 343</p> <p>Total Depth: 16306' MD</p> <p>TD Date: June 20, 2014</p> <p>Formation: Niobrara A Marl</p> <p>KB Elevation: 4734'</p> <p>GR Elevation: 4710'</p> <p>API Number: 05-123-39070-0000</p>

ROCK TYPES

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

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 250	0 1500 250		24					NOBLE ENERGY INC NCLP AA06-66-1BHNA 4-T6N-R63W 2310' FNL, 100' FWL WELD CO., CO	50 450	TG, C1-C4
								H&P 343 LOGGERS: ANDREW CHRISTIANO SAM STELZER CALLED OUT BY COMPANY MAN ON 6/10/2014 COMMENCED LOGGING @ 2500' MD		

6/13/2014
DAY 02
0 FT/24HRS

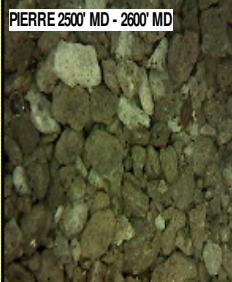
WOB 26.6K
PP 3175
RPM 90
SPM 67/67

ROP (Ft/Hr)
Gamma (API)

MD 2587 TVD 2585.87
INC 6.96 AZ 188.09
VS -4.89

MD 2682 TVD 2680.11
INC 7.54 AZ 190.88
VS -2.45

2500
2550
2600
2650
2700



@ 9:45 PM ON 6/13/2014 W/BIT # 2,
8.75", ULTERRA, U516S (S/N) 19023
IN @ 840' MD

PIERRE

CAME IN BEFORE LOGGING
DEPTH

2500' MD-2600' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, FREE SLTY
SH, SANDY, IMBD PYR, INTGR POR,
NO STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

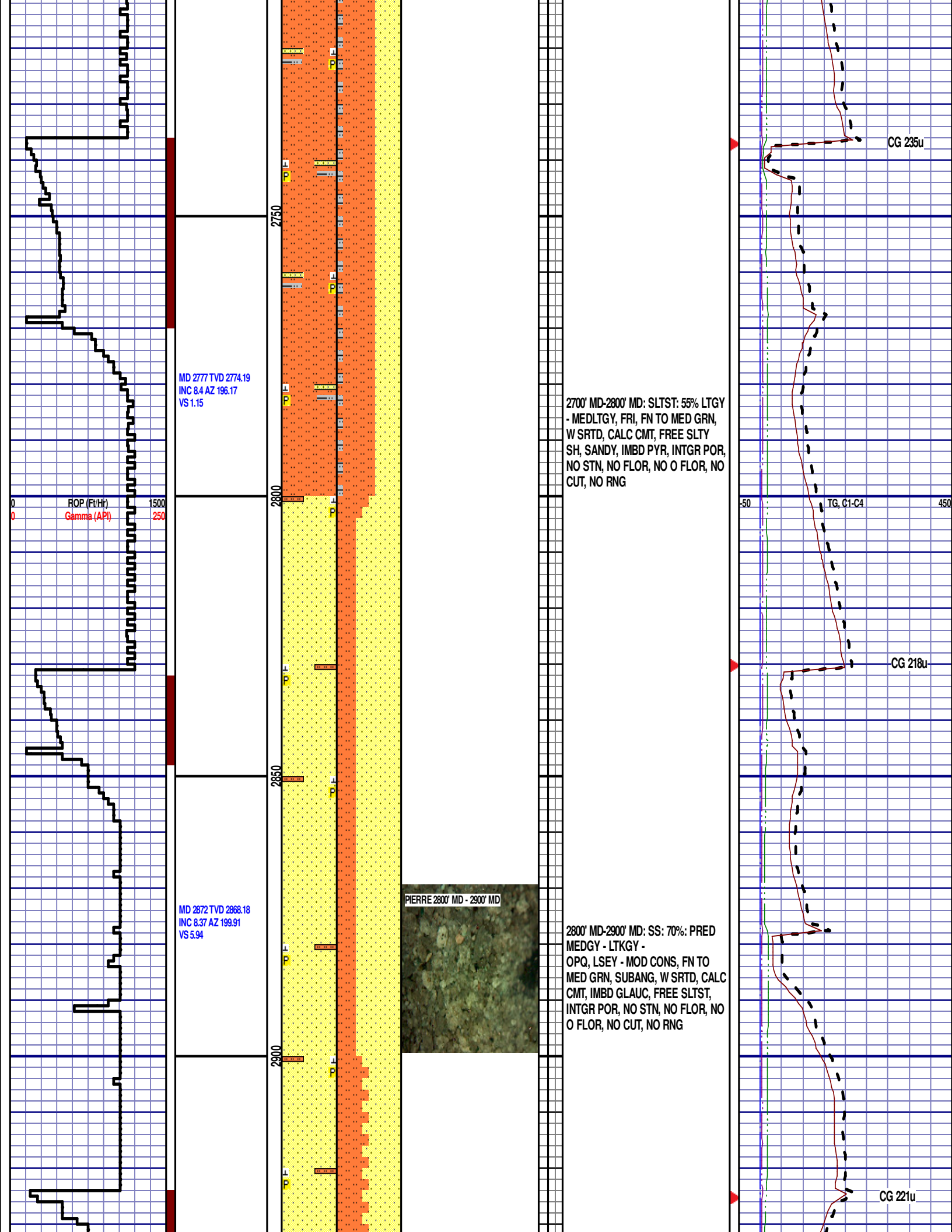
2600' MD-2700' MD: SLTST: 55% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, FREE SLTY
SH, SANDY, IMBD PYR, INTGR POR,
NO STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

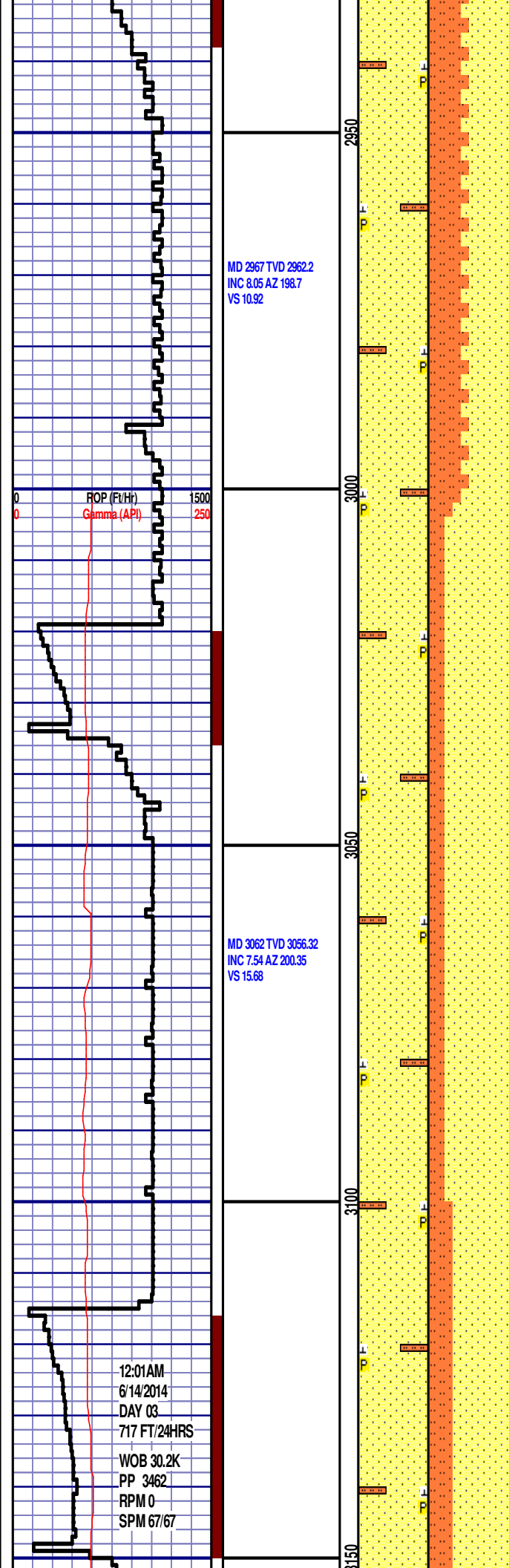
DEPTH 840'
WT 8.65
VIS 29
PH 9.0
FIL 12.8
CL 2700
CAL 280
H2O 98.0
OIL 0.0
LGS 9.5
GEL 1/2/2
PV 3
YP 4
CK 1/0
SOL 1.7

CG 177u

TG, C1-C4

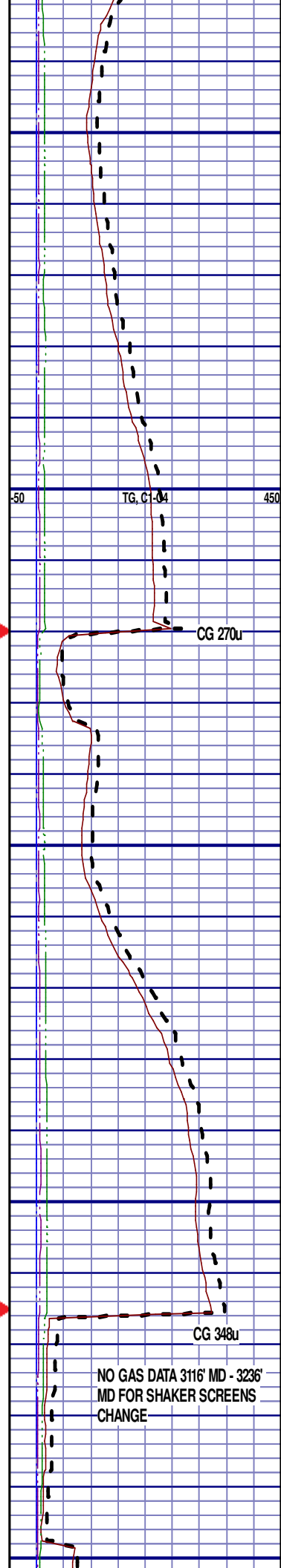
CG 171u





2900' MD-3000' MD: SS: 55%: PRED
MEDGY - LTKGY -
OPQ, LSEY - MOD CONS, FN TO
MED GRN, SUBANG, W SRTD, CALC
CMT, IMBD GLAUC, FREE SLTST,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

3000' MD-3100' MD: SS: 80%: PRED
MEDGY - LTKGY -
OPQ, LSEY - MOD CONS, FN TO
MED GRN, SUBANG, W SRTD, CALC
CMT, IMBD GLAUC, FREE SLTST,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG



MD 3156 TVD 3149.38
INC 8.72 AZ 195.47
VS 20.21

ROP (Ft/Hr)
Gamma (API)

1500
250

MD 3251 TVD 3243.53
INC 6.58 AZ 197.81
VS 24.26

MD 3345 TVD 3336.94
INC 6.22 AZ 193.87
VS 27.52

PIERRE 3100' MD - 3200' MD



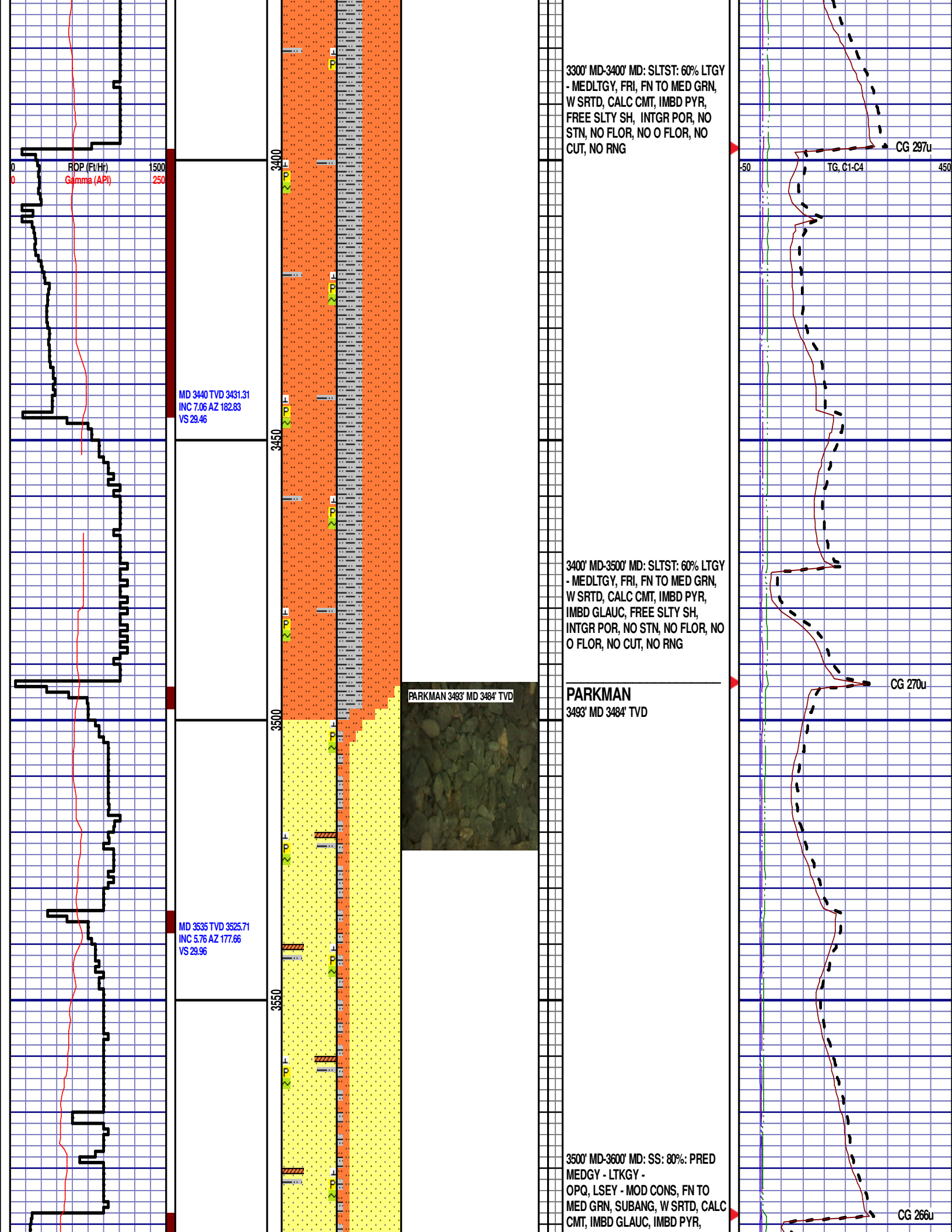
3100' MD-3200' MD: SS: 70%: PRED
MEDGY - LTKGY -
OPQ, LSEY - MOD CONS, FN TO
MED GRN, SUBANG, W SRTD, CALC
CMT, IMBD GLAUC, FREE SLTST,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

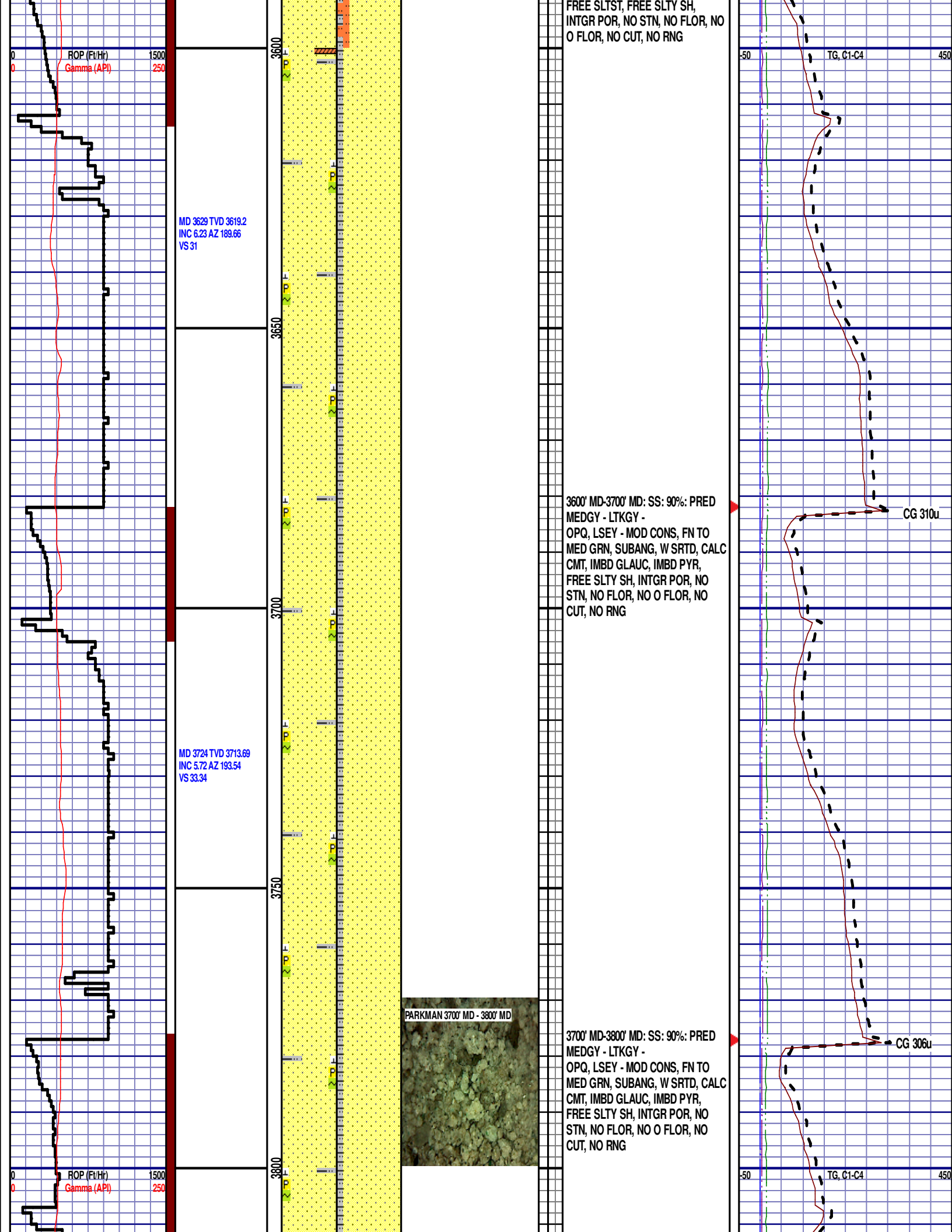
TG, C1-C4

CG MASKED BY
SHAKER DOWN

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

CG 302u





MD 3819 TVD 3808.24
INC 5.46 AZ 202.07
VS 36.49

MD 3913 TVD 3901.9
INC 4.23 AZ 210.5
VS 40.2

MD 4007 TVD 3995.79
INC 1.07 AZ 232.17
VS 42.79

ROP (Ft/Hr)
Gamma (API)

1500
250

3850

3900

3950

4000

3800' MD-3900' MD: SS: 90%: PRED
MEDGY - LTKGY -
OPQ, LSEY - MOD CONS, FN TO
MED GRN, SUBANG, W SRTD, CALC
CMT, IMBD GLAUC, IMBD PYR,
FREE SLTY SH, INTGR POR, NO
STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

3900' MD-4000' MD: SLTST: 50% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD PYR,
IMBD GLAUC, FREE SLTY SH,
SANDY, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

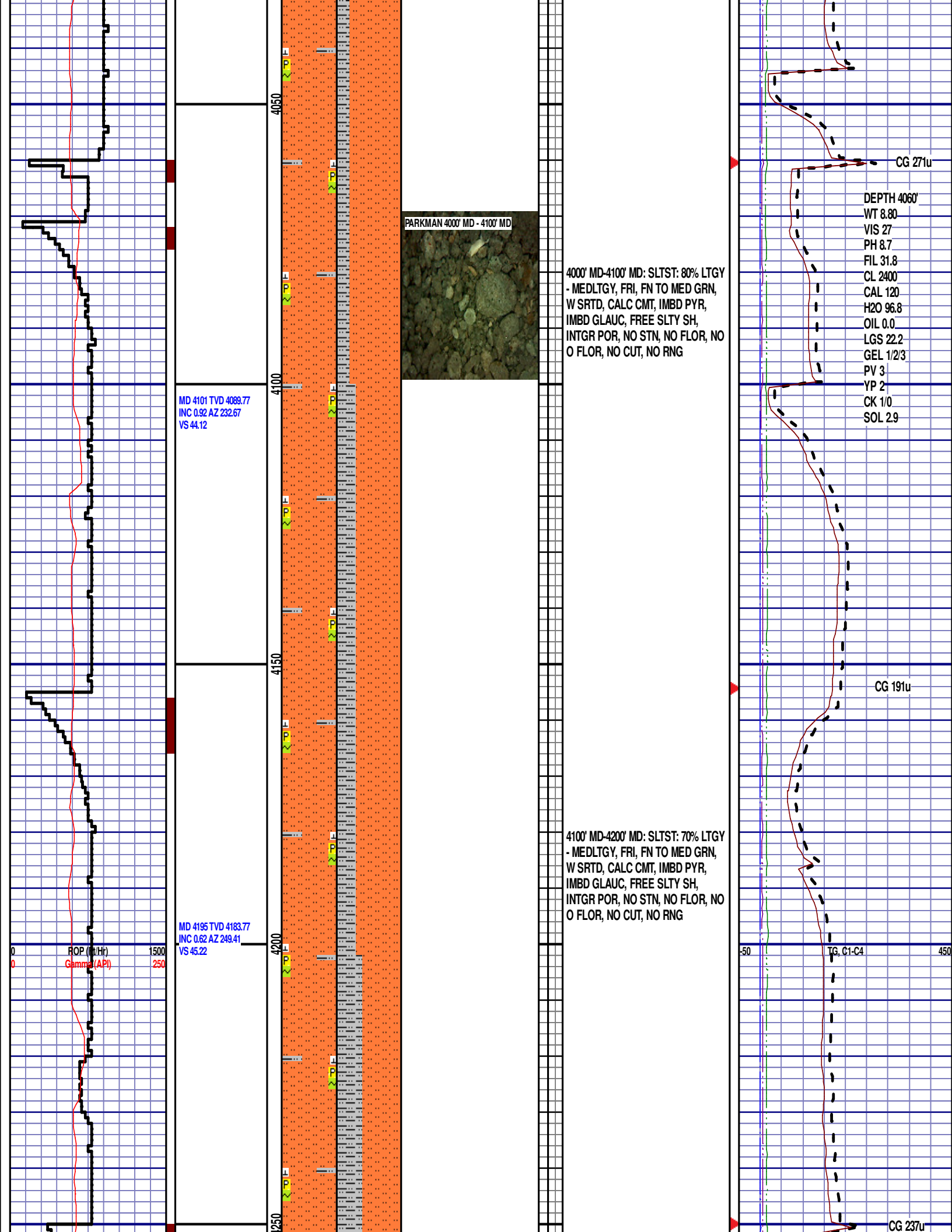
CG 245u

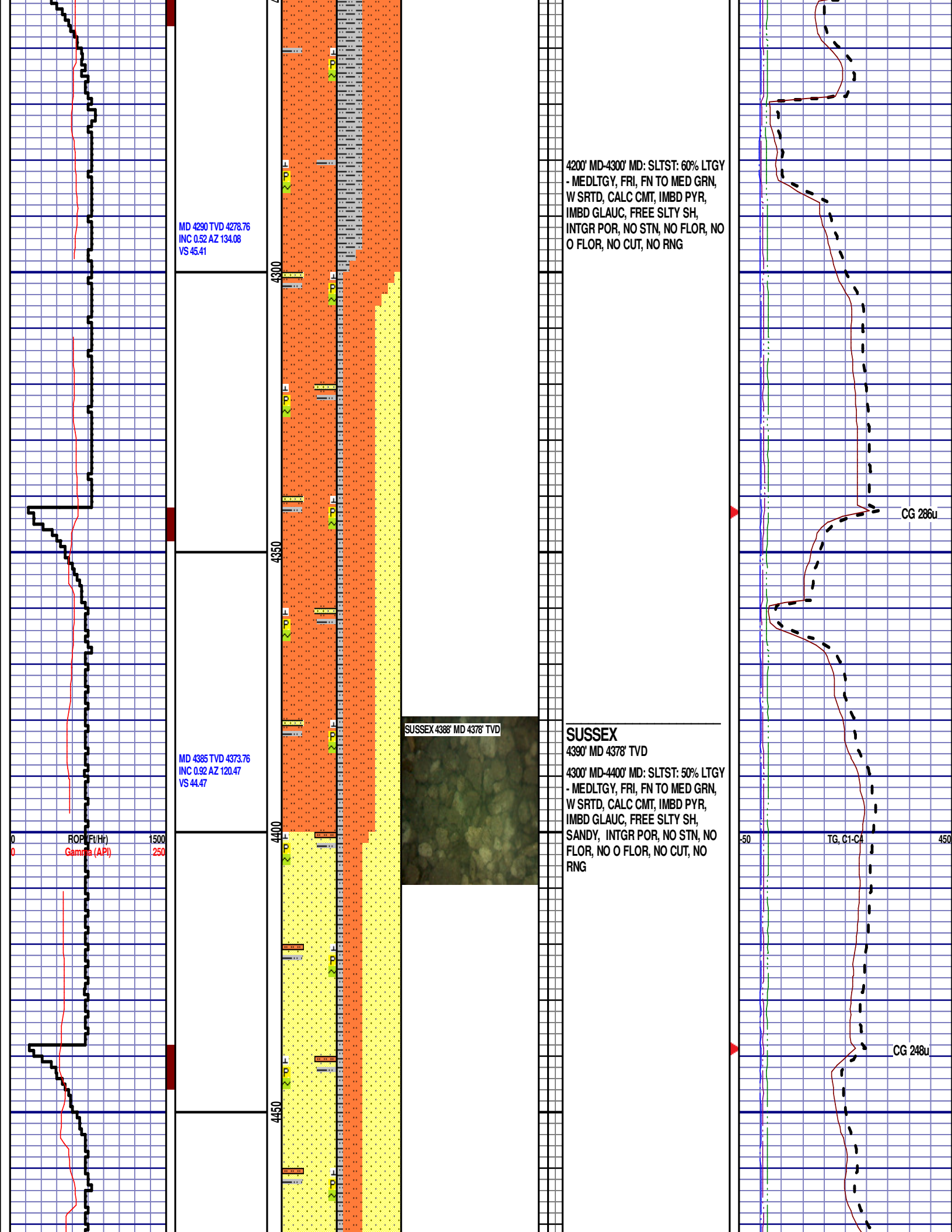
CG 304u

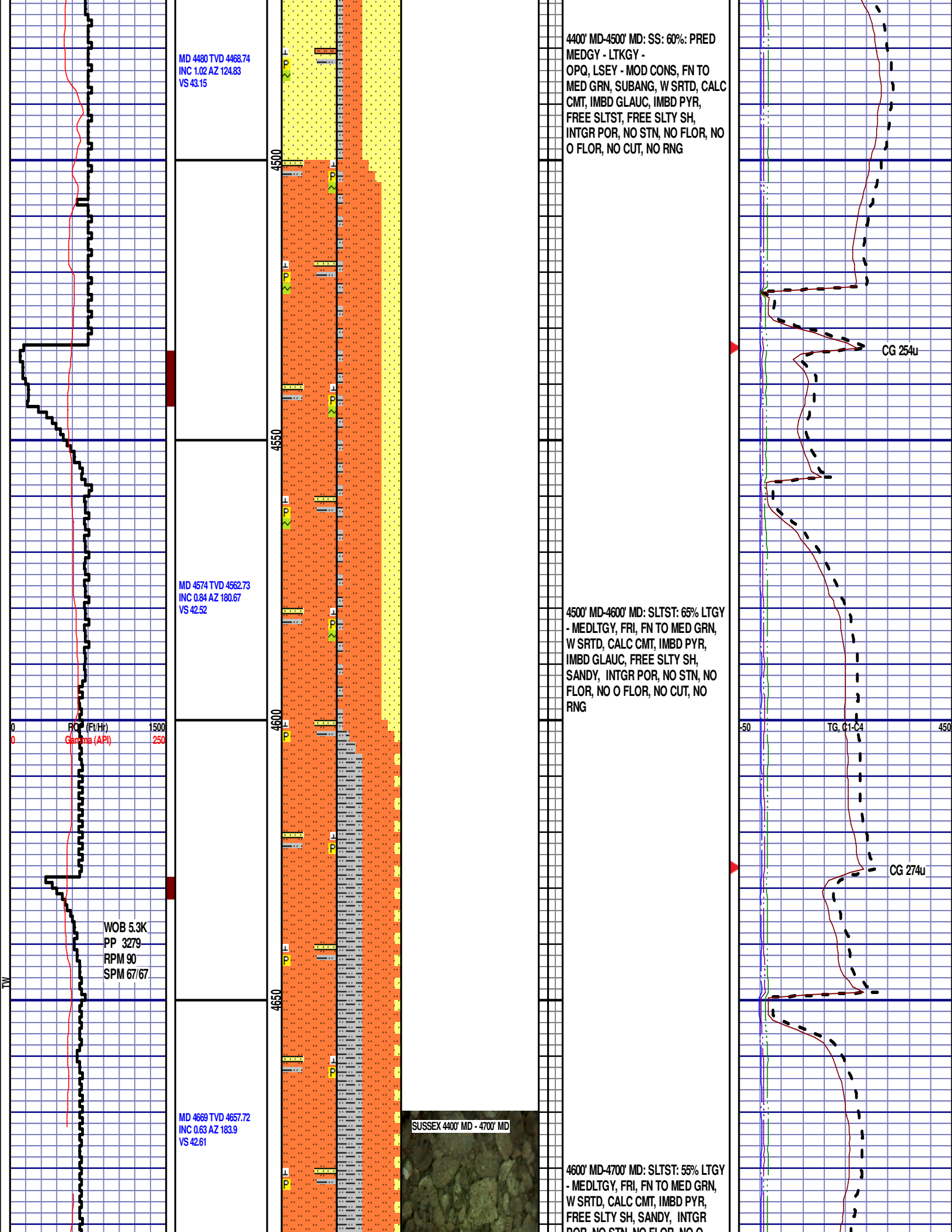
-50

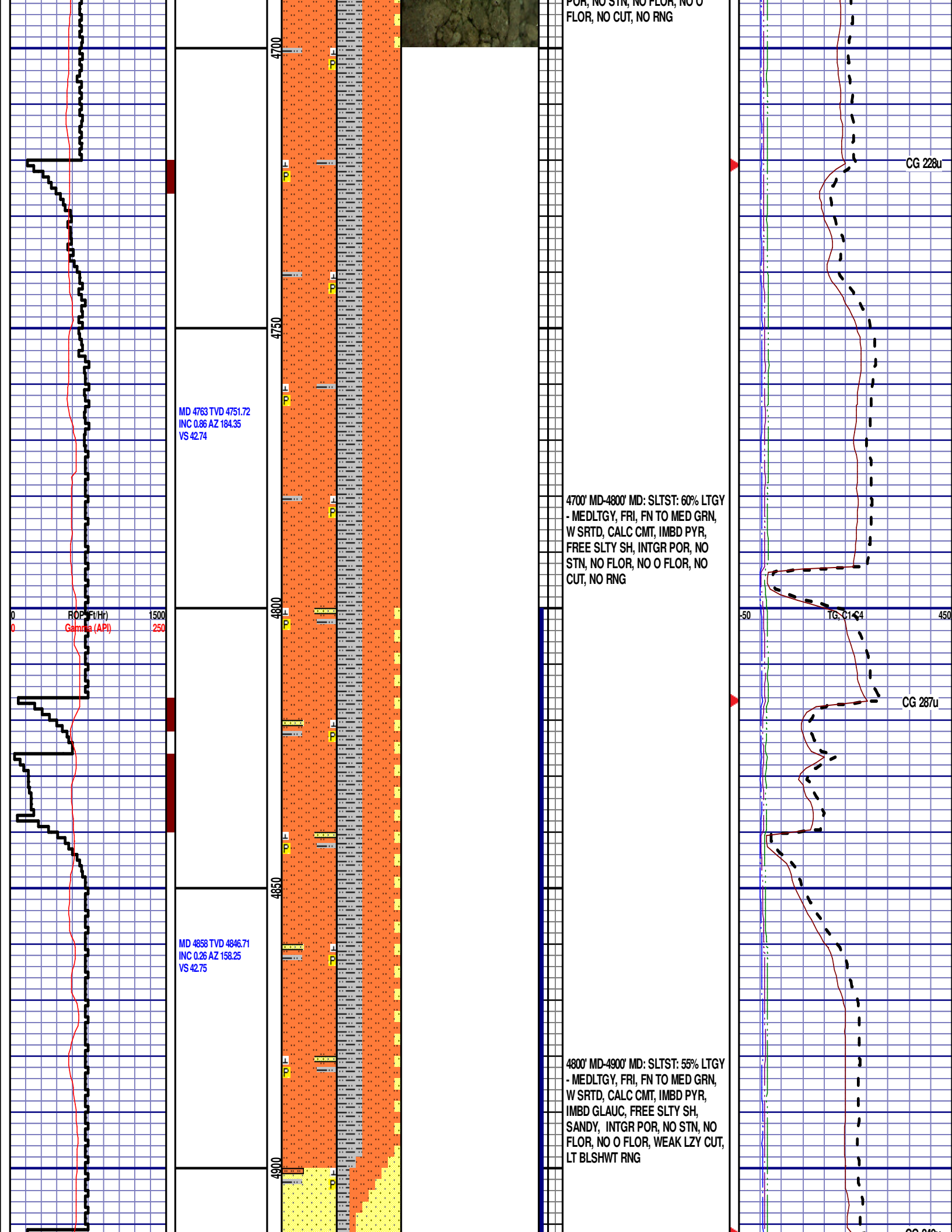
TG, C1-C4

450









POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

CG 228u

MD 4763 TVD 4751.72
INC 0.86 AZ 184.35
VS 42.74

4700' MD-4800' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD PYR,
FREE SLTY SH, INTGR POR, NO
STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

ROP (ft/Hr)
Gamma (API)

1500
250

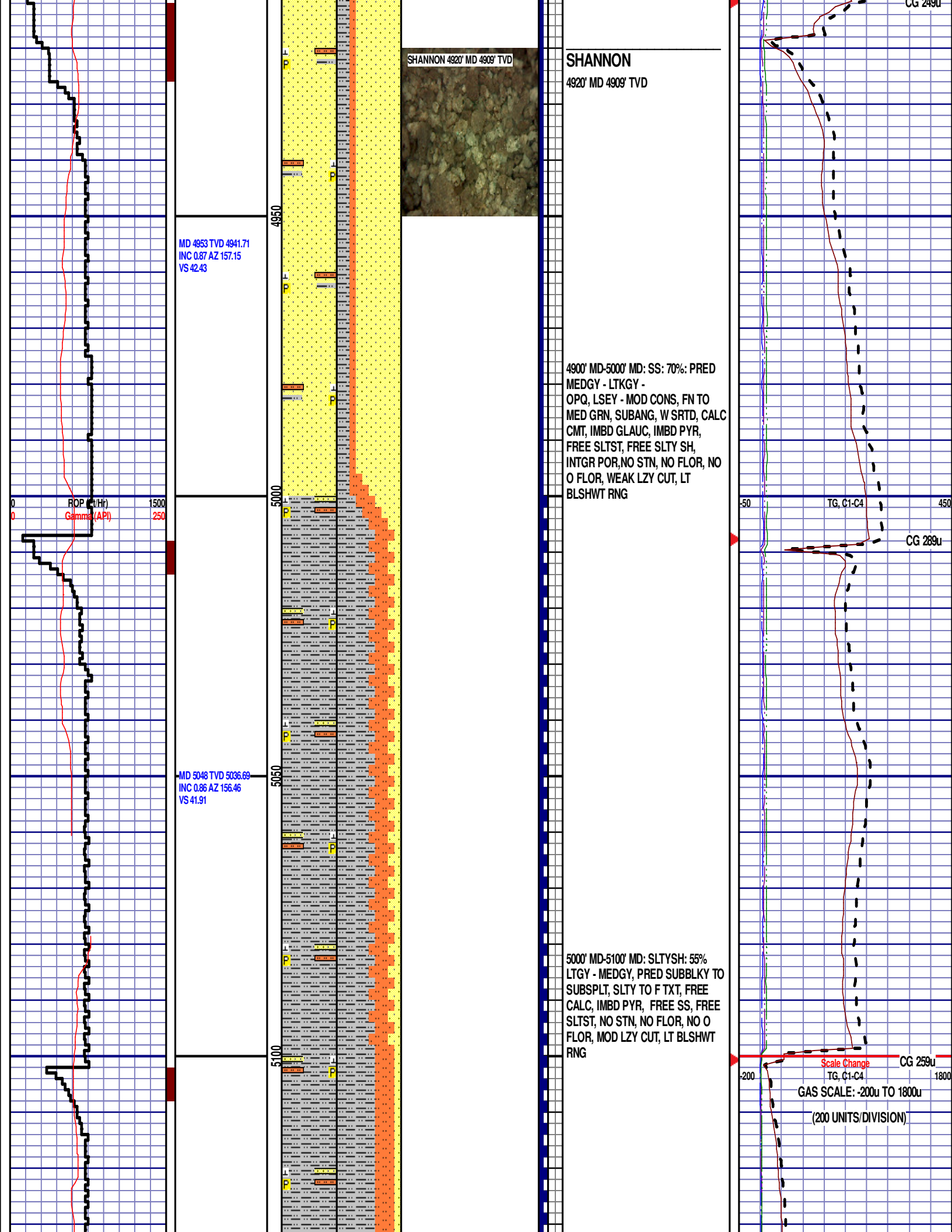
50 450
TG, C1-4

CG 287u

MD 4858 TVD 4846.71
INC 0.26 AZ 158.25
VS 42.75

4800' MD-4900' MD: SLTST: 55% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD PYR,
IMBD GLAUC, FREE SLTY SH,
SANDY, INTGR POR, NO STN, NO
FLOR, NO O FLOR, WEAK LZ CUT,
LT BLSHWT RNG

CG 289u



MD 5143 TVD 5131.69
INC 0.61 AZ 133.2
VS 41.3

5150

5200

5250

5300

5350

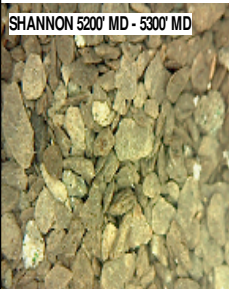
ROP (Ft/Hr)
Gamma (API)

1500
250

MD 5238 TVD 5226.68
INC 0.33 AZ 193.01
VS 41.02

MD 5332 TVD 5320.68
INC 0.85 AZ 177.78
VS 41.09

SHANNON 5200' MD - 5300' MD



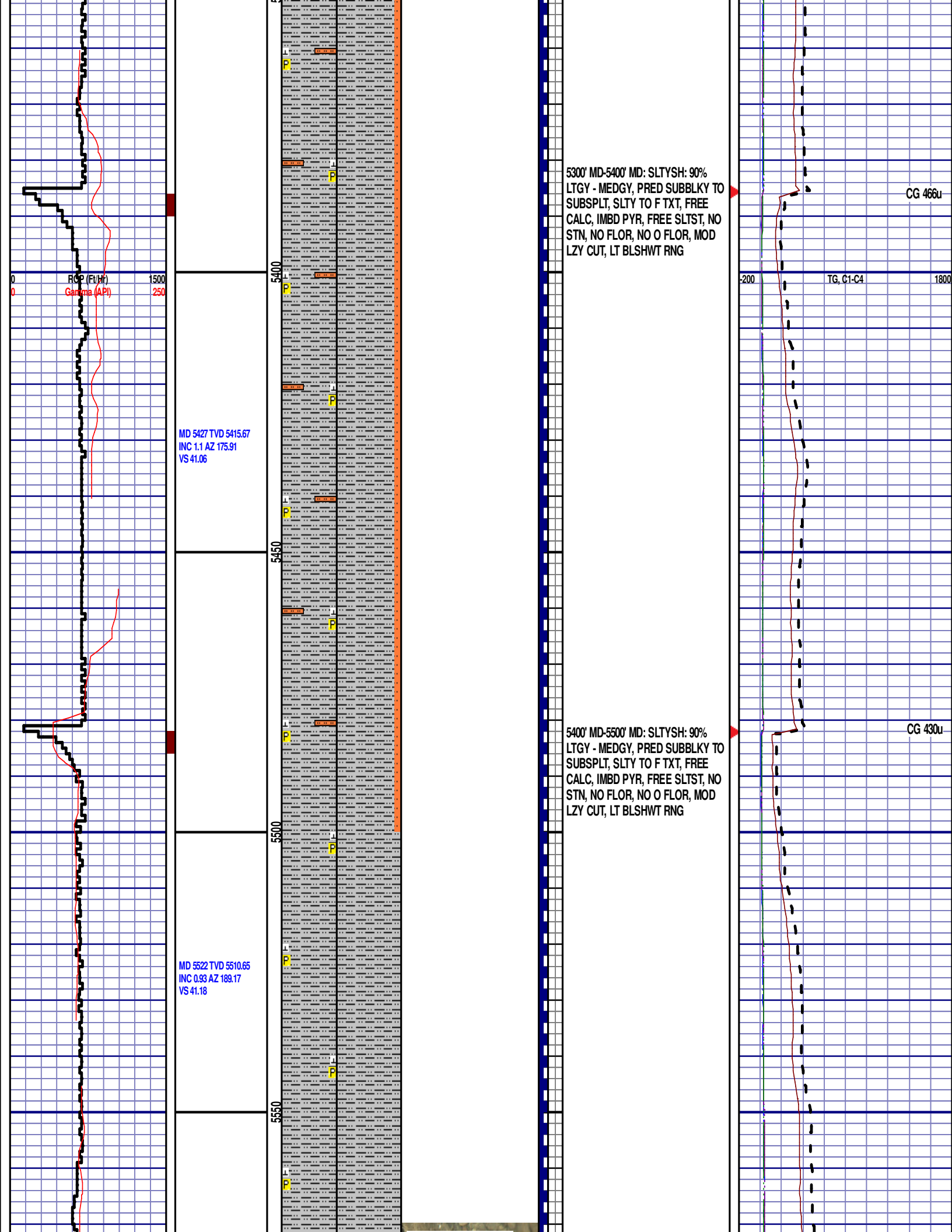
5100' MD-5200' MD: SLTYSH: 60%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SS, FREE
SLTST, NO STN, NO FLOR, NO O
FLOR, MOD LZ CUT, LT BLSHWT
RNG

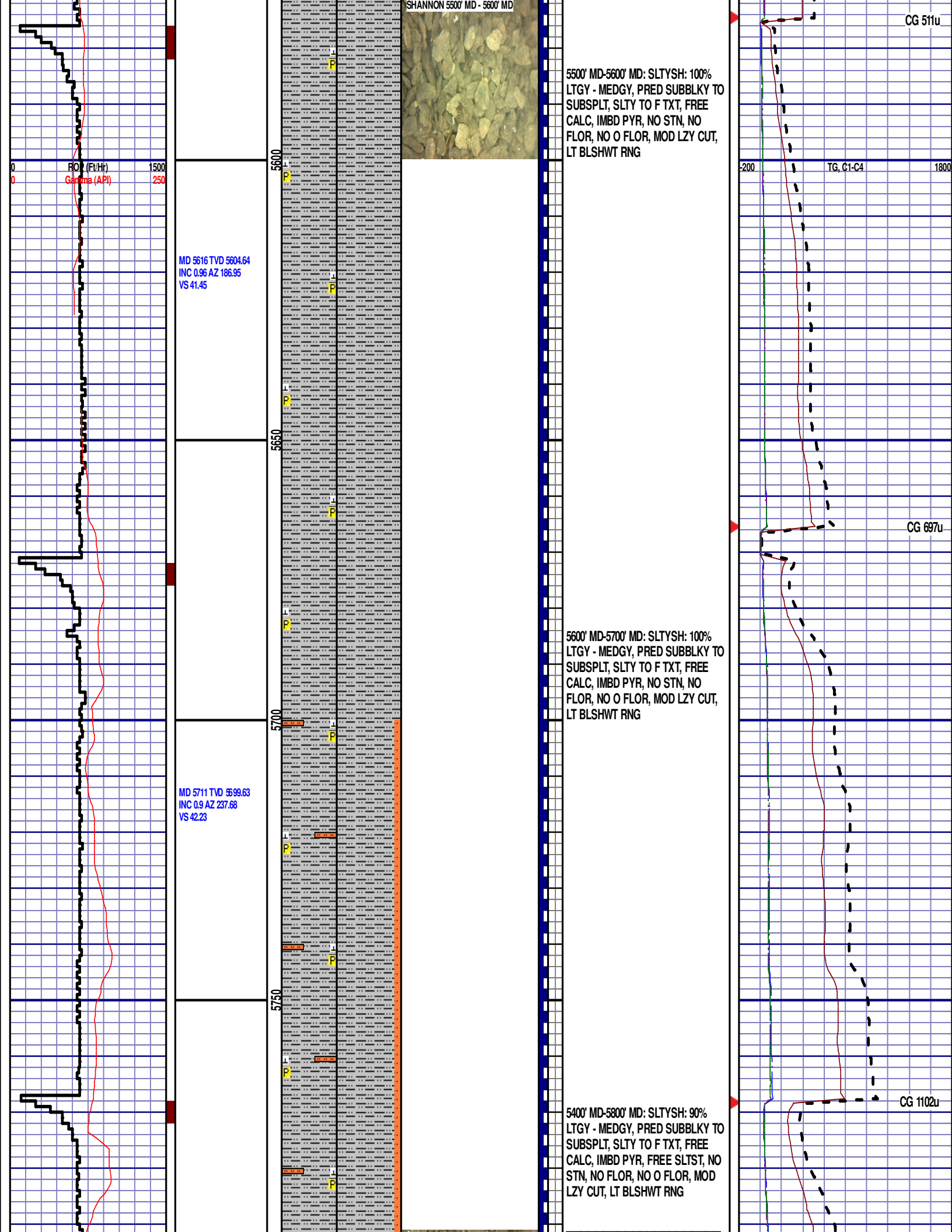
5200' MD-5300' MD: SLTYSH: 80%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST, NO
STN, NO FLOR, NO O FLOR, MOD
LZ CUT, LT BLSHWT RNG

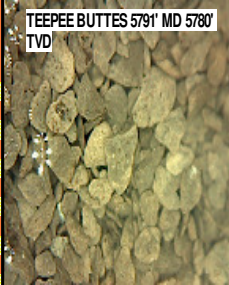
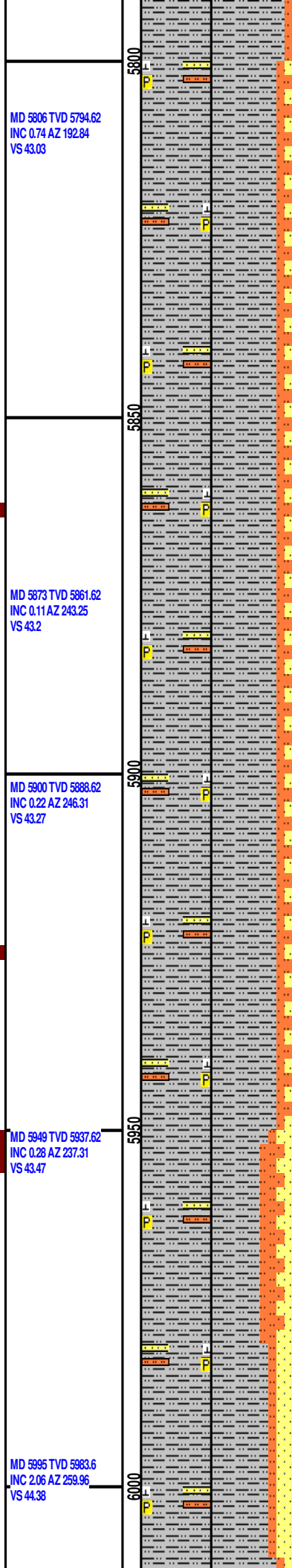
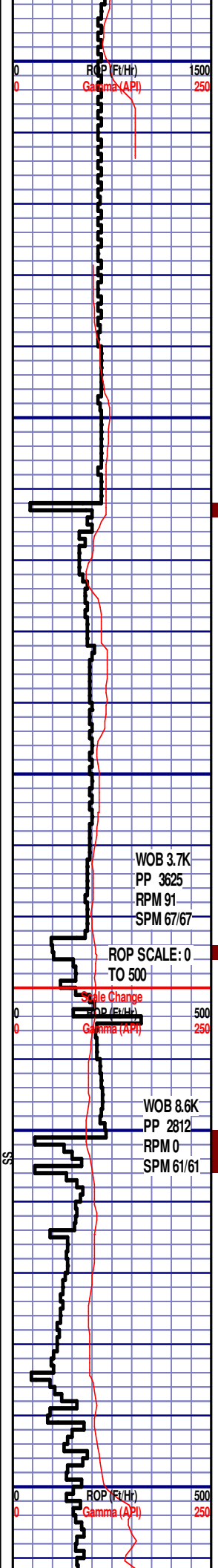
CG 392u

TG, C1-C4

CG 465u







TEEPEE BUTTES
5791' MD 5780' TVD

MD 5806 TVD 5794.62
INC 0.74 AZ 192.84
VS 43.03

MD 5873 TVD 5861.62
INC 0.11 AZ 243.25
VS 43.2

MD 5900 TVD 5888.62
INC 0.22 AZ 246.31
VS 43.27

MD 5949 TVD 5937.62
INC 0.28 AZ 237.31
VS 43.47

MD 5995 TVD 5983.6
INC 2.06 AZ 259.96
VS 44.38

WOB 3.7K
PP 3625
RPM 91
SPM 67/67

ROP SCALE: 0
TO 500

ROP (ft/hr)
Gamma (API)

WOB 8.6K
PP 2812
RPM 0
SPM 61/61

ROP (ft/hr)
Gamma (API)

5800' MD-5920' MD: SLTYSH: 80%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZV CUT, LT BLSHWT
RNG

TOOH @ 8:50 AM ON 6/14/2014 @
5926' MD TO PICK UP CURVE
ASSEMBLY

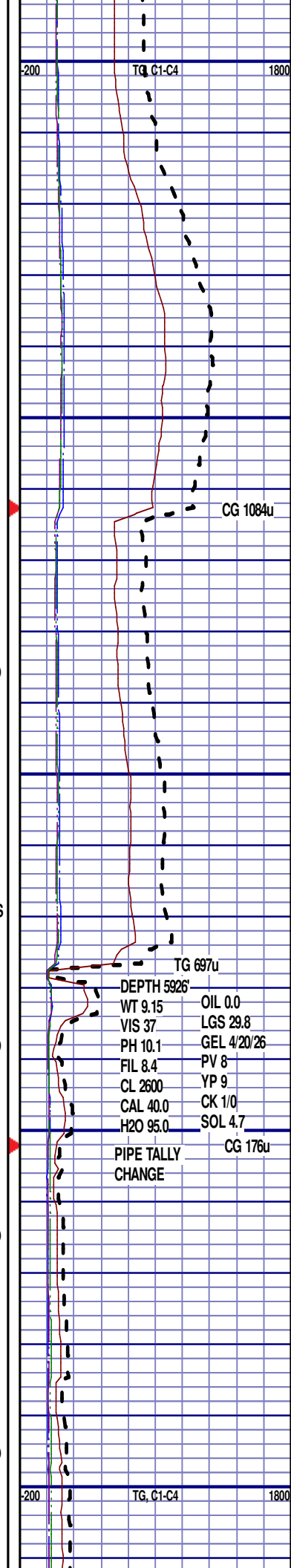
TIH @ 12:15 PM ON 6/14/2014.
RESUMED DRILLING @ 4:00 PM ON
6/14/2014 W/BIT #3, SIZE 8.75", HDBS
MMD55M, S/N 12475196 IN @ 5926'
MD

SWITCHING TO 30FT SAMPLE
INTERVAL

5920' MD-5950' MD: SLTYSH: 80%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZV CUT, LT BLSHWT
RNG

5950' MD-5980' MD: SLTYSH: 60%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZV CUT, LT BLSHWT
RNG

5980' MD-6010' MD: SLTYSH: 70%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZV CUT, LT BLSHWT
RNG

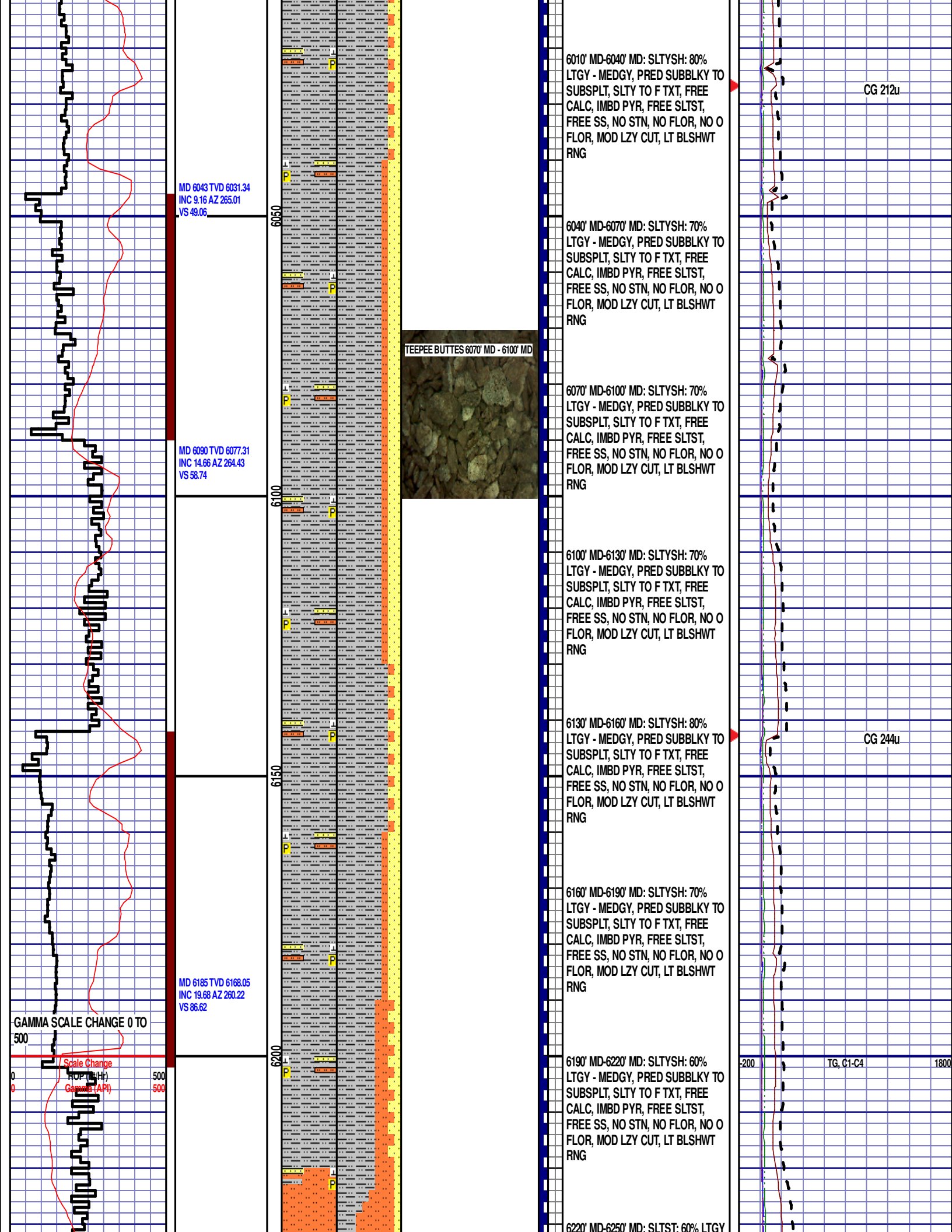


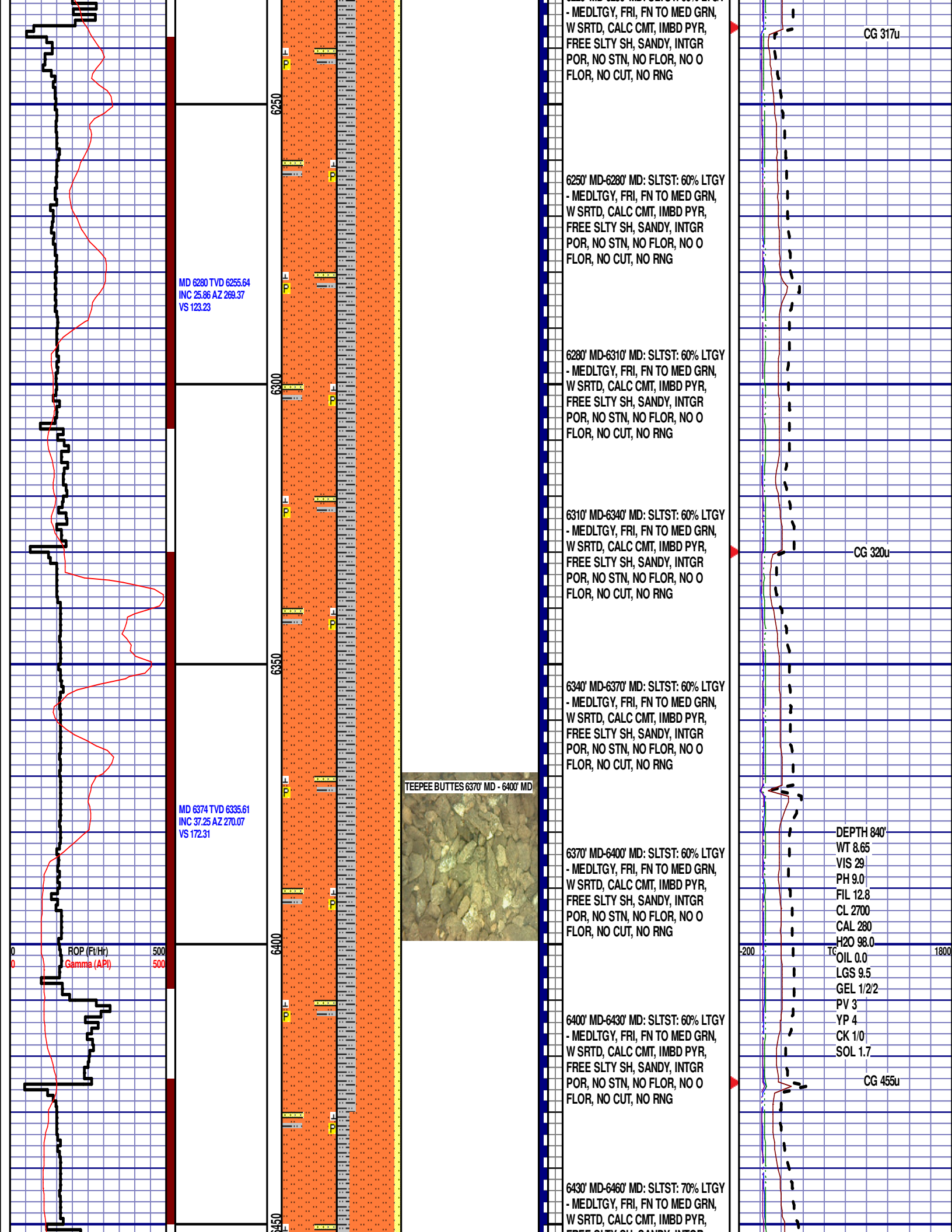
DEPTH 5926'

WT 9.15	OIL 0.0
VIS 37	LGS 29.8
PH 10.1	GEL 4/20/26
FIL 8.4	PV 8
CL 2600	YP 9
CAL 40.0	CK 1/0
H2O 95.0	SOL 4.7

PIPE TALLY
CHANGE

CG 176u





MD 6469 TVD 6405.7
INC 47.48 AZ 270.11
VS 236.19

MD 6563 TVD 6465.86
INC 52.91 AZ 270.55
VS 308.3

ROP (FTH)
Gamma (API)
WOB 24.9K
PP 3865
RPM 30
SPM 67/67

MD 6658 TVD 6517.83
INC 60.71 AZ 271.93
VS 387.6

6500

6550

6600

6650

TEEPEE BUTTES 6580' MD - 6610' MD

SHARON SPRINGS 6635' MD 6510'
TVD

6460' MD-6490' MD: SLTYSH: 70%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST, NO
STN, NO FLOR, NO O FLOR, MOD
LZY CUT, LT BLSHWT RNG

6490' MD-6520' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD PYR,
FREE SLTY SH, SANDY, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

6520' MD-6550' MD: SLTYSH: 70%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST, NO
STN, NO FLOR, NO O FLOR, MOD
LZY CUT, LT BLSHWT RNG

6550' MD-6580' MD: SLTYSH: 70%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, TRC FREE BENT,
FREE SLTST, NO STN, NO FLOR,
NO O FLOR, MOD LZY CUT, LT
BLSHWT RNG

6580' MD-6610' MD: SLTYSH: 70%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, TRC FREE BENT,
FREE SLTST, NO STN, NO FLOR,
NO O FLOR, MOD LZY CUT, LT
BLSHWT RNG

6610' MD-6640' MD: MRL: 70% (CaCO₃ 45%)
MEDDRKGY - DRKGY, BLKY TO SUBBLKY,
FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD
CAL, FREE PYR, FREE BENT, 10% FREE SLTY
SH, 20% FREE CHALK, NO STN, 10% LTOR
MIN FLOR, FNT BLSHWT O FLOR, IMMED
STRMG CUT

SHARON SPRINGS
6635' MD 6510' TVD

6640' MD-6670' MD: MRL: 60%
(CaCO₃ 45%) MEDDRKGY - DRKGY,
BLKY TO SUBBLKY, FXLN TO
CHLKY, SFT, CHK FRMWRK, IMBD
CAL, FREE PYR, FREE BENT, FREE
CHALK, NO STN, 10% LTOR MIN
FLOR, FNT BLSHWT O FLOR,
IMMED STRMG CUT

CG 712u

TG, C1-C4

CG 672u

WOB 21.1K
PP 3798
RPM 30
SPM 67/67

6700

50

6670' MD-6700' MD: MRL: 60%
(CaCO3 45%) MEDDRKGY - DRKGY,
BLKY TO SUBBLKY, FXLN TO
CHLKY, SFT, CHK FRMWK, IMBD
CAL, FREE PYR, FREE BENT, FREE
CHALK, NO STN, 10% LTOR MIN
FLOR, FNT BLSHWT O FLOR,
IMMED STRMG CUT

END OF VERTICAL LOG @ 6700' MD
ON 6/14/2014, CONTINUED ON
HORIZONTAL LOG